PETROLEUM WEEK

NOVEMBER 4, 1955

■ A McGRAW-HILL PUBLICATION

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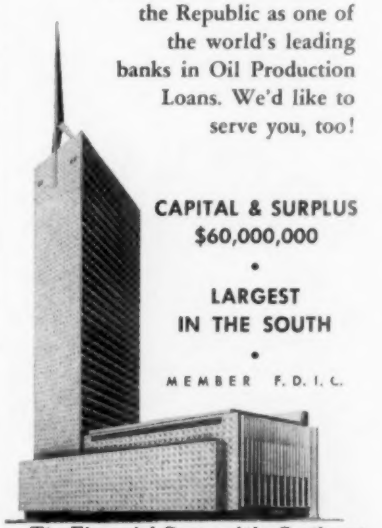

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60-Second Summary

WHAT'S HAPPENING IN OIL

November 4, 1955

Defense Mobilizer Arthur Flemming says established oil importers must "move over" to make room for newcomers in the importing field. He explains that his recommendation for a 7¢ cutback in crude oil imports (page 11) applies to each importer—even if his imports are already in line with the government-recommended ratio of imports to domestic production. Flemming estimates imports now should drop between 25,000 and 27,000 b/d if importers make a real effort to comply with the suggested rollback.

•

Today's crude prices must reflect the cost of tomorrow's crude recovery, if producers are to avoid financial distress. That's the warning sounded by the Cost Study Committee of the Independent Petroleum Assn. of America. . . . p. 9

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It takes more than one specialized tool to log a well properly. So say a group of experts, who add that the trend is toward use of many devices. . . . p. 17

•

Petroleum demand will "slow down" next year, making only a 3.4% gain over 1955. That's the view of 12 economists on the Supply & Demand Committee of the Independent Petroleum Assn. of America. Barrel-wise, the 1956 demand is estimated at 8,997,000 b/d, about 300,000 b/d over this year. . . . p. 10

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Use of inert gases may help prevent oil industry fires and explosions. The gases are put in storage tanks, vessels, and pipes to drive out oxygen and flammable vapors. . . . p. 22

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There's a new way to cement an oil well without the use of portland cement. Dowell Incorporated, of Tulsa, has developed a material made of chemicals. It's called Dexet, and it's designed especially for down-hole work. . . . p. 16

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Bradford crude prices in Pennsylvania went up 14¢ to 15¢ a bbl. this week, bringing the total to $3.75 a bbl. Seep Agency of South Penn Oil Co. instituted the raise, prompted by accumulated demand for lube oils following the two-month strikes at Elk and Pennzoil refineries.

•

The search for underground storage has uncovered chalk as a suitable reservoir for oil. Two Oklahoma LPG marketers are excavating a chalk formation in Alabama now. . . . p. 29

•

There's a chance the bustling activity by U.S. oil companies in Sicily may be duplicated on Italy's mainland. It all depends on whether the upcoming revision of Italy's oil law gives these companies the same opportunities they have in Sicily. . . . p. 26

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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau

November 4, 1955

The picture on gas-producer regulation is foggier than ever. In three cases last week, the Federal Power Commission ducked chances to spell out a formula for fixing the price of gas in the field. Instead, it ordered the examiner to reopen the cases Nov. 28 for more evidence.

Some experts see FPC leaning toward the "cost" approach to producer regulation, on the basis of this action. They say the commission is making a transparent bid for introduction of cost data. Their feeling is that FPC is losing enthusiasm for the theory—inherent in its Panhandle Eastern decision—that gas prices should reflect the "commodity value" of the fuel.

Most industry sources, however, say FPC is just stalling any precedent-setting decisions until Congress has a chance to act on the Harris Bill. The House-passed measure, which would remove independent producers from direct federal control, is slated for Senate consideration not later than February. The FPC majority favors the bill. And Chairman Jerome Kuykendall said only last week that "new and different methods" are needed for fixing prices for commodities like gas.

The whole question may end up in court soon. At least one producer is ready to appeal if FPC denies his proposed rate increase without explaining why it doesn't meet the "just and reasonable" standard.

•

Atomic-powered aircraft will increase military oil consumption. That's the theory advanced by Gen. Thomas D. White, Air Force vice chief of staff. His argument goes this way: Nuclear-powered aerial tankers—which may be in the air within 10 years—would have unlimited range. An aerial refueling operation is less vulnerable to enemy attack than one on the ground. This adds up to fewer overseas bases and longer flights from the U. S. The net result—more consumption of petroleum products.

•

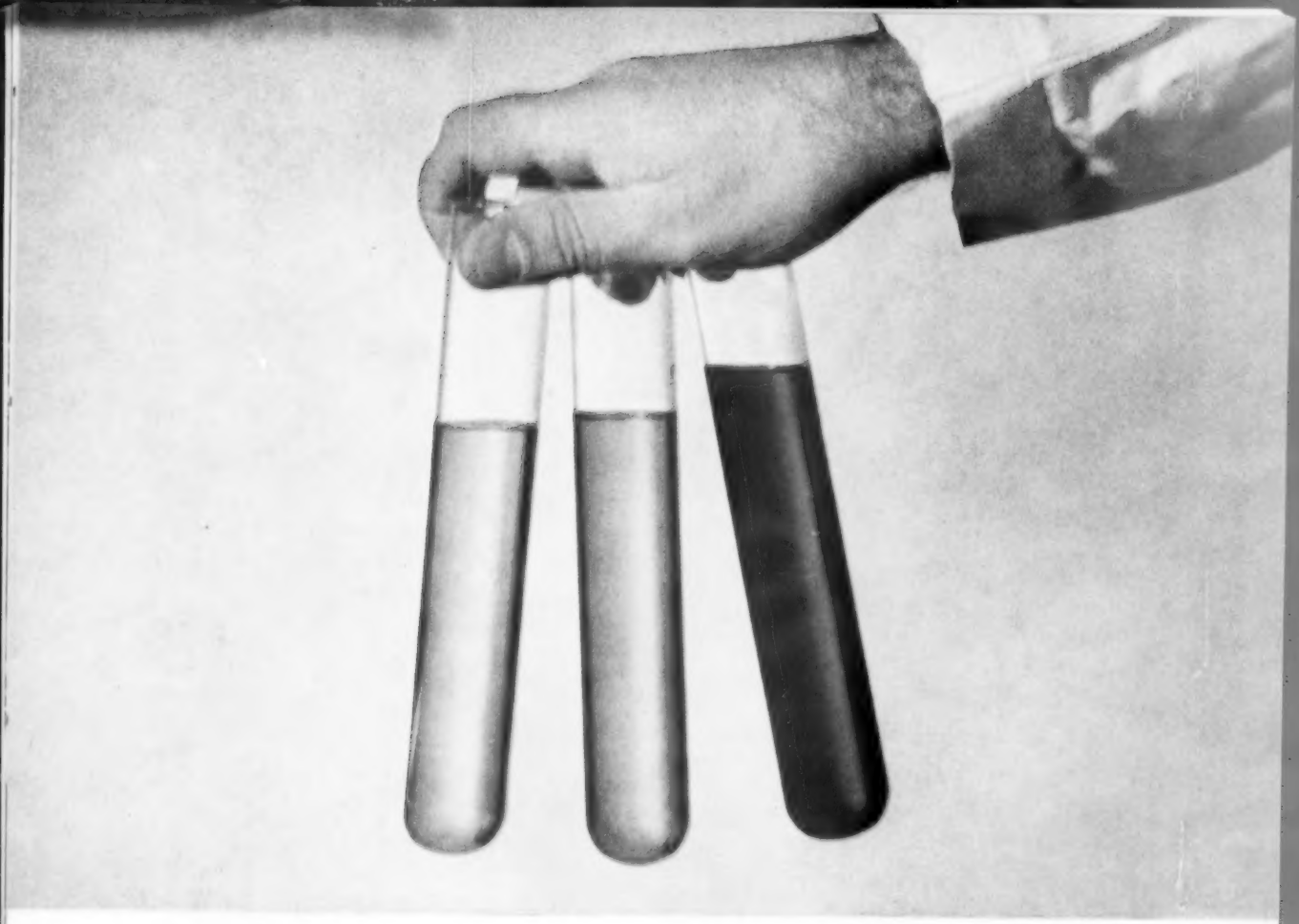
An $80-million plan for moving Middle Eastern natural gas to Europe is in the works. A syndicate including Continental Oil Co., Westinghouse International, and Koppers Chemical Co. is shopping for sources of supply now. Under this plan, liquefied natural gas would be hauled in specially insulated tankers to West German petrochemical plants.

•

There's new talk of a replacement for Brig. Gen. W. W. White, chief of the Pentagon's petroleum logistics division. He'll return to Esso Export Corp. when his tour of duty expires in February. Those figuring largest in the speculation are Col. C. A. (Buck) Rogers, now Army representative in White's shop, and Brig. Gen. L. E. Cotulla, formerly with the Army-Navy Petroleum Board.

•

The trade-in-and-build tanker program is dying on the vine. Congress demands that vessels built under the plan have a speed of 18 knots or more. Oil companies insist on a lower speed, and the Navy has largely backed them up. Gulf Oil Corp. is reported abandoning plans to build two tankers under the program on grounds the higher speed is impractical for commercial operation. Look for fireworks when Congress reconvenes.



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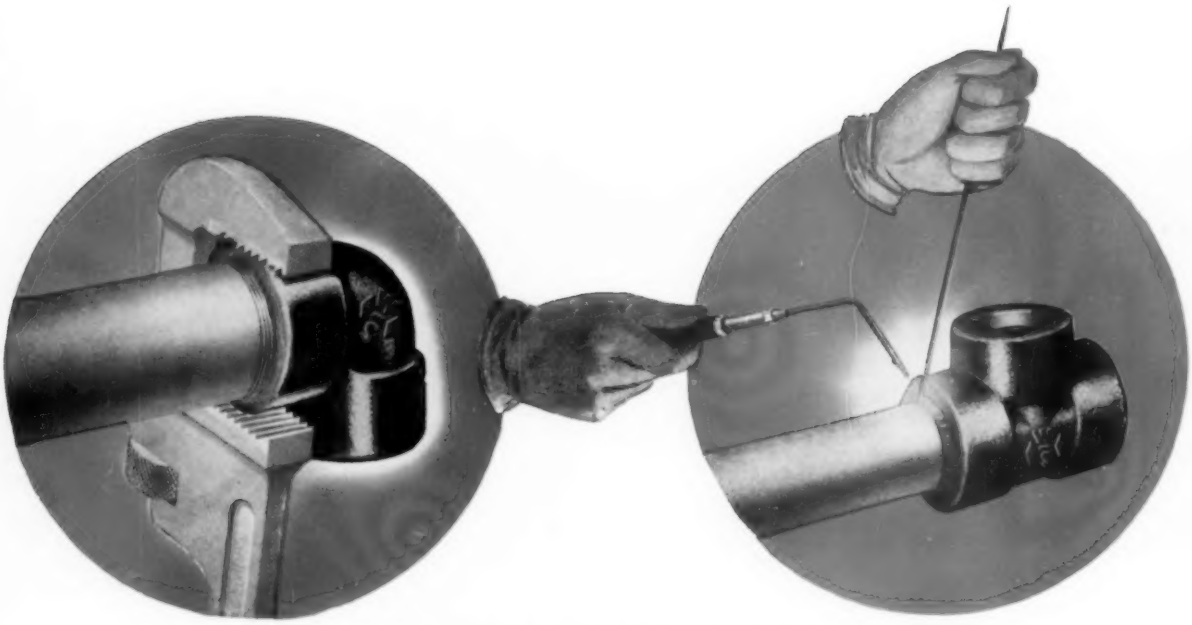

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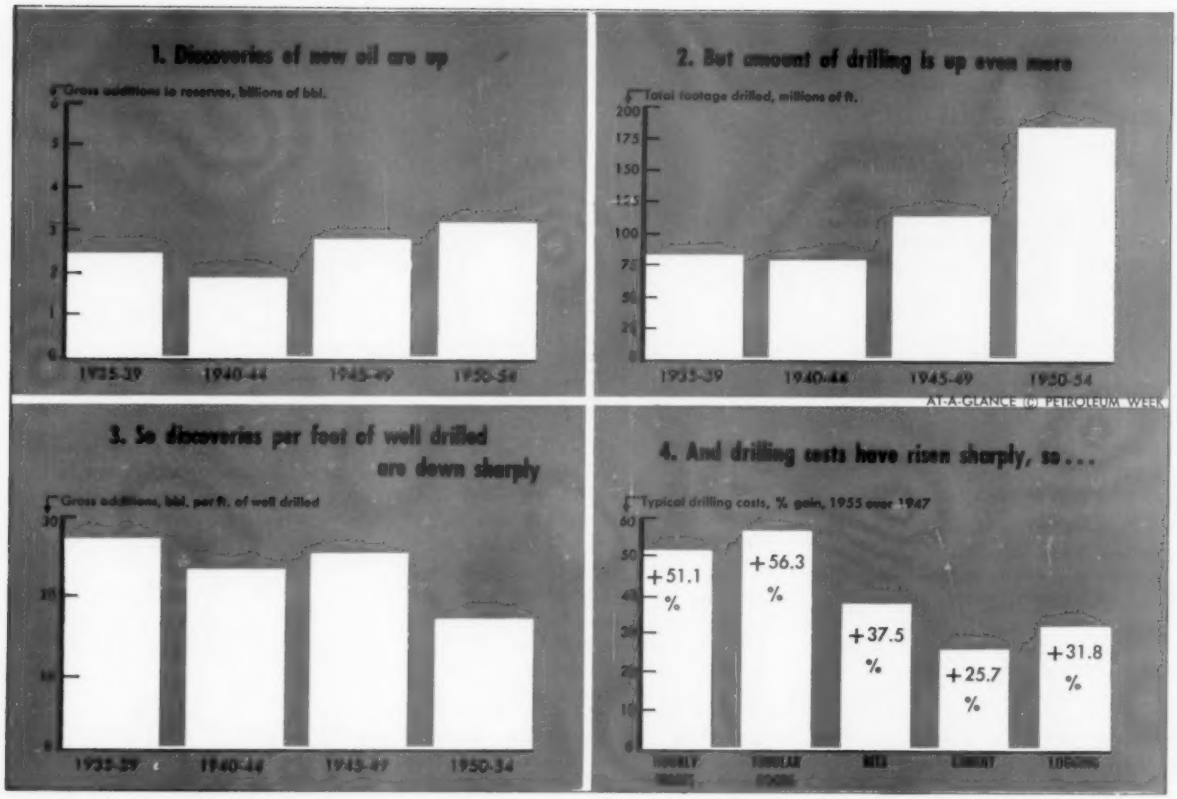

Cost of Finding Oil Keeps Rising

Oil producers are headed for financial trouble unless the price of crude today is put in step with the cost of replacing that crude tomorrow. This was the cold economic logic that the Cost Study Committee of the Independent Petroleum Assn. of America offered the industry this week.

Traditional accounting methods for computing depletion and depreciation on cost fall short because they are based on yesterday's cost, instead of tomorrow's, the committee reported at the IPAA annual meeting in St. Louis.

The result, the committee said, is that accumulated dollar reserves for reinvestment in exploration and production are "woefully inadequate" to do the job of providing funds for replacing oil reserves currently consumed, and equipment which has worn out.

Costs, committee members agreed, are rising at a much faster rate than revenue from oil being produced, meaning that reinvestment funds may shrink at the very time they should be increasing to meet the nation's growing demand for oil.

The big need, the committee said, is for a price structure which includes a consideration of replacement costs. This would enable a producer to set aside from this year's revenue enough funds for next year's increasing expense.

The committee urged the industry to seek recognition of the replacement cost principle by the industry itself, by the government, and by the accounting, engineering, and economics professions, so that bookkeeping costs will more accurately reflect increasing production costs.

As things stand now, the industry doesn't know what its replacement costs are, and hasn't agreed upon a method of determining them. However, effort is being made to provide such figures.

An indication of the skyrocketing replacement cost is given in a financial analysis of 35 oil companies by the Chase Manhattan Bank. It shows these companies spent the equivalent of $1.76 a bbl. for crude produced in 1954, compared with $1.58 in 1953. This was an increase of 11%. Yet crude prices remained unchanged except for minor adjustments in local areas.

The bank study also points up the failure of charges based on depreciation, depletion, amortization, and other capital costs to meet capital expenditures. In 1954, the excess of expenditures over writeoffs by the 35 companies totaled nearly $1.5-billion. In a nine-year period, these companies spent in excess of $10-billion more on domestic exploration and development

It's Taking More Work to Find Oil

	1935-39	1940-44	1945-49	1950-54
		(Yearly averages)		
Gross additions to crude supply (millions of bbl.)	2,431	1,859	2,843	3,179
Total footage of wells drilled (thousands of ft.)	85,180	78,074	113,420	184,150
Gross additions per ft. drilled (bbl.)	28.55	23.81	25.07	17.26
Number of wells completed	27,335	24,283	31,794	46,174
Gross additions per completion (thousands of bbl.)	89	77	89	69
Number of oil wells completed	18,815	14,760	18,251	24,814
Gross additions per completion (thousands of bbl.)	129	126	156	128
Exploratory wells completed	2,632*	3,599	6,050	11,056
Gross additions per completion (thousands of bbl.)	1,162*	516	470	288
Exploratory wells completed as oil wells	373*	517	906	1,644
Gross additions per completion (thousands of bbl.)	8,199*	3,592	3,137	1,933
Seismic parties, monthly average	184*	226	340	545
Gross additions per crew (thousands of bbl.)	16,621*	8,239	8,357	5,829

*Based on 1937-39 only

than was supplied by funds based on accounting charges for depreciation, depletion, and amortization.

One thing is indisputable: Producers' costs have risen rapidly and apparently will keep on rising—perhaps at an even greater pace.

For one thing, unit costs have been going up steadily. The committee cited some government statistics as examples of this: Since June, 1953, hourly wages have risen 9.2%; oil field tubular goods, 10.2%; construction costs, 11.1%; structural steel, 17.9%.

There also have been noticeable increases in the cost for such services as perforating, drillstem tests, and similar jobs. Lease purchase and rent costs are up. Furthermore, new methods of drilling and completing wells, such as fracturing, have resulted in higher expenses.

At the same time that per-foot costs have been increasing, the producer has been forced to drill more wells and drill them deeper. In the five-year period beginning in 1937, total drilling located an average of 31 bbl. of new oil per foot drilled. In the five-year period beginning in 1950, an average of 18.7 bbl. was found per foot drilled. In 1954 alone, the average was only 15 bbl. for each foot drilled.

The committee pointed out, too, that the cost of drilling increases as a well deepens. For example, the last 1,000 ft. of a 12,000-ft. well may cost nine to ten times as much as the first 1,000 ft. of the same well. Thus the growing trend to deeper and deeper wells means greater and greater costs.

The combined cost increases, together with increased drilling, have caused production expenditures to rise about 20% since June, 1953. Meanwhile, production has increased only 3.8% and prices have remained virtually unchanged.

Exploration drilling, when compared with results obtained, has increased in cost at an even faster pace than other production expenses. The committee findings give this striking example: Drilling completions from 1950 through 1954 were four times greater than for the 1935-1939 period—yet they averaged less than 25% of the results per well of the earlier period. Meanwhile, material, equipment, and service costs had more than doubled.

It adds up to this: Exploration, which always has been risky, is becoming an even greater—and more expensive—risk.

Despite spiraling costs, more and more reserves must be found to replace oil being currently produced. The long-term demand for crude petroleum in this country has doubled in the past 14 years, and is expected to double again within the next 20 or 25 years, the committee said. Population and per capita consumption are both climbing. The committee estimated that the per capita consumption increased from 10 b/d in 1940 to 15.7 b/d in 1950. Consumption this year will equal 18 b/d per capita, and will reach 21 b/d by 1960.

Committee figures indicate that the country's reserve isn't keeping pace with the demand. Known reserves of petroleum liquids in 1941 were 14 times the amount of production for that year. But at the end of 1954, the known reserves equaled 12.8 times the amount of production.

"Normal expenditures therefore must allow not only for the replacement of crude produced, but for maintenance of a normal ratio of reserves in relation to the amount of oil withdrawn from those reserves," the committee said.

The cost committee said the nation can count on increasing oil and gas supplies in the foreseeable future—provided that "reasonable economic incentives, adequate materials, and a favorable climate for private investment prevail."

IPAA Says Demand Will Rise 3.4%

The growth in petroleum demand next year is expected to return to a more normal pattern, recording a gain of 3.4% over 1955. This is the composite view of 12 economists on the Supply & Demand Committee of the Independent Petroleum Assn. of America.

This forecast, presented at IPAA's annual meeting in St. Louis this week, predicts total demand for all oils next year will average 8,997,000 b/d. The estimate was predicated on a level of general business activity in 1956 only slightly higher than experienced this year. The committee places average 1955 demand at 8,697,000 b/d, an increase of 7.3% over 1954.

Total new supply required to meet the anticipated 1956 demand is estimated by the committee at an average of 9,004,000 b/d, or an increase of 3.2% over 1955.

The estimated domestic crude oil production required to fill next year's demand will depend on the volume of imports and the output of domestic natural gas liquids, according to the committee. It expects production of natural gas liquids in 1956 to average 743,000 b/d, compared with 709,000 b/d this year.

"Domestic crude oil production in 1956 would increase 311,000 b/d over 1955 (to 7,085,000 b/d) if total imports were to bear the same relationship to domestic production as existed in 1954," the committee predicts. If imports next year continue at the 1955 level, it estimates domestic crude production at an average of 7,018,000 b/d, 244,000 b/d over 1955.

"On the other hand," say the IPAA group, "domestic crude oil production would increase only 18,000 b/d (to 6,792,000 b/d) should 1956 imports show the same percentage increase as in 1955."

What Flemming's Latest Move Means

The imports issue broke into an uproar this week after Defense Mobilizer Arthur Flemming said crude imports are still running too high and should be cut back an additional 7% in the fourth quarter. He said this applies to all countries except Venezuela and Canada.

Crude imports scheduled for the fourth quarter from all areas other than Canada and Venezuela average 356,300 b/d. A 7% cut would mean a reduction of about 24,900 b/d. However, since October is past, and since many November shipments are already under way, virtually all of the cut would fall in December. To absorb the three-month reduction in December, a cut of almost 75,000 b/d would be necessary.

Flemming also said a reporting system would be set up to enable him to keep check on imports during 1956 to see that they stay within the reduced level to meet the formula set by the Cabinet Fuels Policy Committee last February. This specified that imports should not "significantly exceed" 1954 import ratios.

Flemming's stand was taken in a letter mailed to importers and in a speech he made Monday before the Independent Petroleum Assn. of America meeting in St. Louis. He said it was based on an evaluation of reports made to him earlier by the major importing companies.

Flemming's request drew sharp reaction from importers. Some said they couldn't make the cuts that quickly. Others, who contend they are already abiding by the committee's formula, said they'd "be damned" if they would make an additional 7% cut to offset excesses by other importers.

They were particularly upset at the outset when Flemming said the cuts in November and December should be enough to offset the 7% "excess" of the entire last three quarters of the year. They termed this "unreasonable" and "impossible." However, Flemming said later he meant the cut to apply only to fourth-quarter import schedules.

Even so, importers were skeptical that this could be done. Contractual buyers, in particular, doubted they could revise their schedules downward to meet Flemming's goal. They are under contract to take the oil, they said, and they have to deliver it to the United States because they don't have markets elsewhere.

Some importers feel Flemming's action was unfair to those shipping from the Middle East and Far East. This attitude stemmed from Flemming's exemption of Venezuelan and Canadian imports from further cuts as long as they continue to abide by the original formula.

DEFENSE MOBILIZER Arthur Flemming tells IPAA of his letter to importers asking them to reduce crude—but not residual—imports an additional 7%.

Flemming justified this on the ground that imports from Venezuela had not been excessive.

This view was challenged by at least one Middle East importer. "Our company has been abiding by the formula," he said, "yet we are being asked to make additional cuts to make up for excessive imports by someone else, while importers from Venezuela aren't."

Even domestic producers weren't altogether pleased by Flemming's actions. Many of them took the view that it was little more than a half-step in the right direction. They were especially leery over the exemption to Canada, fearing it might leave the door open for increased imports from that country which, in turn, would import more oil from abroad.

"Bringing in Canadian crude because there is an oversupply there is one thing. But if Canadian crude comes into the U. S. because it has been crowded out of its domestic market by foreign crude, that's something else," said Russell B. Brown, IPAA's general counsel.

Officially, IPAA approved a report which said that Flemming's step "gives further encouragement that a solution to the problem of excessive oil imports is not only in process but will be forthcoming."

Unofficially, IPAA appears to have adopted a wait-and-see attitude. If Flemming's approach gets the desired results, it will be satisfied; otherwise, it will press hard for further action to solve the problem.

Alwyn P. King, president of TIPRO, expressed "disappointment" over the exemptions to Canada and Venezuela. However, he said, TIPRO "recognizes that the chief threat to our industry's stability and our national security comes from the rapidly increasing flow of oil from the Middle East."

King indicated he felt that sooner or later the imports problem would have to be solved by the tariff approach. He termed a tariff "the only really workable solution in the long run because it puts the control directly where it belongs—in an economic framework."

Importers and users of residual fuel oil were cheered by the fact that no further cuts for that product were requested. Flemming said a study of the residual supply-demand and imports figures indicate no need for a further reduction.

This was so, he said, because demand rose 8% while domestic production remained unchanged and exports rose sharply.

This week's developments postponed any showdown soon on mandatory government restrictions. Flemming's call for further voluntary action was taken as evidence he doesn't plan to recommend to President Eisenhower that such restrictions be imposed.

"We still hope it will not be necessary for the government to intervene in a formal manner," Flemming said. "We hope the reports will not make it necessary."

The establishment of the reports system, wherein companies will report periodically on their imports plans, appeared to be additional indication that Flemming plans to continue the voluntary approach at least until the 1956 imports picture becomes clear.

Flemming's move caused little reaction among congressmen. Apparently those who have favored legislation to restrict oil imports—including congressmen from coal-producing states—feel there would be no steam behind such a drive at this time.

INDUSTRIAL LEADERS at atomic energy confab last week heard predictions that . . .

Atomic Energy Won't Hurt Oil

The oil industry stands to gain much, and lose little or nothing, by the development of nuclear energy for peacetime uses.

Atomic energy scientists, researchers and specialists, meeting in New York last week for the National Industrial Conference Board's fourth annual conference on atomic energy in industry, painted this picture of the foreseeable future:

For the most part, nuclear energy will supplement rather than supplant conventional energy uses—including oil. Thus, when such installations as nuclear power plants to generate electricity are constructed, they will not be built to replace existing plants but to help them meet the nation's expanding needs.

The role atomic leaders see for the new energy source is this: It will do jobs which conventional fuels can't do—such as powering submarines for sustained underwater voyages—and it will help meet the world's rapidly increasing energy requirements which present energy sources might well be unable to meet by themselves.

Dr. Robert E. Wilson, chairman of Standard Oil Co. (Ind.), also voiced this view at the St. Louis meeting of the Independent Petroleum Assn. of America this week. Atomic energy, he said, would not be a competitor of oil, but a "burden-sharer."

He said that only a very major increase in petroleum prices could prevent the oil industry from having all the business it will be able to handle "far beyond the next 25 years."

One of the first major peacetime roles of atomic energy will be in generating electric power. This will come first in areas where coal or oil are scarce. Thus, it will come more slowly in this country than in some others, such as England.

A British official attending the conference estimated that by 1975 nuclear energy will be doing the work of 40-million tons of coal a year in England.

In this country, use of nuclear plants to generate electricity will be much slower because of the availability of ample coal, oil, and natural gas. What development there is during the next two decades will help meet only a fraction of the increased demand over that period—and therefore will pose no threat to use of conventional fuels.

Nuclear energy also appears destined to play a major role in some forms of transportation—eventually. Conference speakers outlined these possibilities:

- **Shipping**—Oil tankers may be the first commercial vessels to be powered by atomic energy, although this development may be a decade away. The advantage would be that a tanker could carry a full cargo for long distances, whereas conventional tankers need considerable storage space for ship fuel requirements. Meanwhile, a top naval officer has predicted that by the early 1960s all top major naval vessels authorized for construction will be propelled by nuclear power.
- **Railroads**—Atomic-powered locomotives are a definite, although not immediate, possibility.
- **Airplanes**—The military is giving high priority to experimental work on planes powered by atomic energy, and a few such planes may be flying within 10 years. For commercial uses, however, there is little likelihood of any development for a long time to come.
- **Automobiles**—There is no indication that atomic power plants will ever be used for operating vehicles of this size.

In a more immediate development, the oil industry is finding atomic energy a very useful research and production tool.

J. F. Kunc, Jr., of Esso Research & Engineering Co., told the atomic conference that the industry already is considered one of the foremost industrial users of radioisotopes.

Radioisotopes have already been put to use in finding oil, getting it out of the ground, refining it, and transporting it. Kunc gave these examples:

- Radioisotopes have been used for tracing underground migration of natural gas in repressuring operations.
- Leakage from underground storage projects and from pipelines can be spotted by use of radioactive material.
- A tritium dilution technique makes possible accurate measuring of gas flow rates in pipelines. This has been put to use in refineries for measuring the flow rates in a line on a catalytic cracking unit, and found to be much more accurate than conventional methods.
- Grease manufacturing processes have been speeded and improved by use of an isotope, Iodine 132, in the mixing vessel to indicate when the greases are properly mixed.
- Isotopes that emit gamma rays are being used in studying the flow of solids in fluidized solid systems, such as the fluid catalytic cracking process for making high-octane gasoline and other products from heavy crude fractions.
- Radioactivity has also been put to use in well-logging and in testing welds for high-pressure tanks and pipe in refineries.

Many oil companies are showing keen interest in atomic energy development, either in its relation to oil activities or as a diversification possibility. Only last week, for example, Sinclair Research Laboratories, Inc., announced a research program to investigate the effect of atomic radiation on petroleum processes and products. The company said it would utilize "the most powerful available source of gamma rays in any industrial laboratory."

All in all, the nuclear energy development picture looks like this: For the next decade, emphasis will be on research, testing, and developing. Beyond that point, nuclear energy will become a commercial factor in those fields where it can compete economically, or where it can fill a need that otherwise would not be met.

What's New / IN THE INDUSTRY

Socony Mobil Oil Co. is reorganizing its overseas operations with establishment of a wholly owned affiliate, Mobil Overseas Oil Co. The new company will have assets in excess of $500-million and will operate with a high degree of autonomy.

Organization of the new company, which will be effective Jan. 1, comes as a result of the rapid growth of Socony Mobil's overseas operations, according to B. Brewster Jennings, board chairman. Mobil Overseas will integrate and be responsible for all activities of Socony Mobil and its affiliates in the Eastern Hemisphere and Latin America, except for its interest in Standard-Vacuum Oil Co., interests within major Middle East concession areas, and producing operations in Venezuela, Colombia, and Peru.

The new company and its affiliates will have about 25,000 employees, have available more than 300,000 b/d of crude, and refinery capacity of about 220,000 b/d. P. V. Keyser, Jr., who will continue as a director and vice-president of Socony Mobil, will be president of Mobil Overseas.

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North Dakota's Industrial Commission has decided to continue 80-acre spacing in Tioga and Beaver Lodge fields, the two largest in the state. The ruling came after three days of testimony by major operators in the field in support of the 80-acre pattern of well-drilling in the fields (PW—Oct. 14'55,p20). Still to be decided is a request for a similar ruling on the McGregor field, with only nine producing wells.

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Acquisition of Houston Oil Co. by Sinclair Oil Corp. is in the "talking" stage, P. C. Spencer, Sinclair's president, said this week. He termed erroneous reports which indicated that the matter had reached the price-discussion stage, saying that even "negotiating" was too strong a term to describe current dealings.

Harold Decker, Houston Oil's president, also confirmed that discussions are taking place; but he declined to elaborate.

Last March, Sinclair bought American Republics Corp., half owner with Houston Oil of oil and gas rights in some 845,000 acres in southwest Texas and Louisiana. There has been speculation ever since that Sinclair would buy Houston Oil.

•

Further automation in the petroleum and chemical industries may increase, rather than cut, employment, according to testimony given last week to the joint congressional subcommittee investigating automation.

Prof. Thomas J. Walsh, of Case Institute of Technology, told the subcommittee that despite heavy use of automation in refining, the number of refinery employees has continued to grow despite actual reduction in the number of refineries operating. However, Walsh said, the percentage of industry employees working in refineries has decreased. He added that automation has led to construction of larger refineries, which can be operated with automatic controls as easily as smaller units can.

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Independent oil unions are planning a Chicago meeting in early December to solidify their aims before going to St. Louis Dec. 8-10 for a unification meeting of all independent unions. A resolution calling the St. Louis meeting was passed at last week's convention in Cleveland of the Confederated Unions of America.

Expected at the Chicago meeting are representatives from independent oil groups in the Mid-Continent, some Eastern independents, and the Central States Petroleum Union, representing independent unions at Standard of Indiana refineries.

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Asphalt highways have gained the endorsement of western highway officials following a recently completed 19-month test in Idaho. In general, the test showed that asphalt roads built for main highways can carry the heaviest legal axle loads, and sometimes heavier loads, even during the wet spring season. The Western Assn. of State Highway Officials sponsored the test.

Fire Damages Bright-Stock Plant

Rebuilding of the explosion-and-fire-damaged Seneca branch of United Refining Co.'s 5,000 b/d refinery is under way in Warren, Pa. Initial estimates placed the property loss at more than $500,000.

The fire started last Sunday morning in the pump house of the Seneca plant, which contained United's facilities for running Pennsylvania cylinder stock into bright stock. When the blaze was put out, four hours later, five chilling tanks, a bauxite kiln, several centrifuge machines, two pump houses, a plant laboratory, and an office building were in ruins. Injuries to personnel were limited to minor burns.

Loss of the Seneca unit will mean a further pinch on supply of bright stock in western Pennsylvania. One source estimates it will take six to eight months before the Seneca plant is producing again.

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(Ohio Independent)

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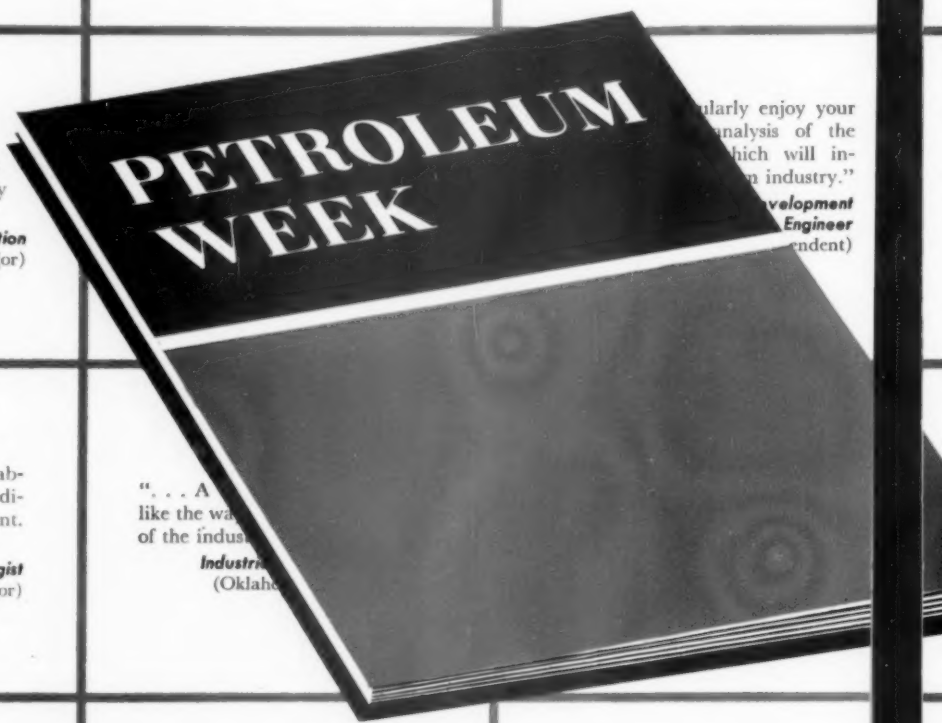
(Western Major)



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(...endent)

"... I like particularly the abstracts at the beginning. The editorial comments are excellent. Please keep it brief."

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Process Engineer
(Texas Independent Refiner)

"... I think PW does what originally said it would do—cover news highlights and new developments in all branches of industry. I like the format and the easy readability ..."

Process Engineer
(Eastern Major)

"... The issue is informative, instructive, and interesting. Looking over the fence to see what the other fellow is doing is so important in this highly competitive industry, and PW seems to make these fences a little lower."

Drilling Contractor
(Texas Independent)

"... Favorably impressed by PW and have no suggestions for change."

President
(Eastern Major)

"... PW very helpful ... in that it gives a quick view of trends and changes in the oil industry without neglecting details of importance to items which you cover in special reports."

Chief Engineer
(Pennsylvania Refiner)

"... Different than any other oil magazine and I hope you keep it that way."

Production Manager
(Texas Major)

"... An easily read oil magazine which gets the kernel without first shaking it out of the tree."
Geophysical Petroleum Chemist
(Colorado Independent)

"... EXCELLENT."
Assistant Division Manager, Sales
(Eastern Independent)

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General Maintenance Superintendent
(California Major)

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Refinery Superintendent
(Western Major)

"... The answer to our wishes for coverage of current operations and predictions of things to come."
Production Superintendent
(Southern Major)

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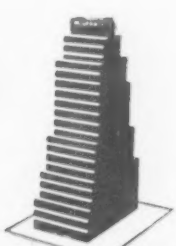

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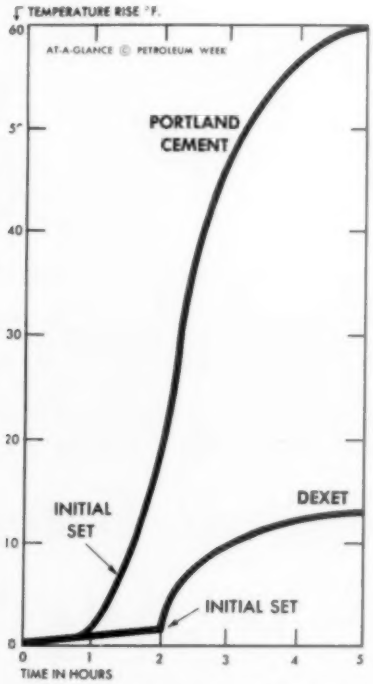

NEW-TYPE SLURRY flows easily. Curve comparing generated heat with that of portland shows why product does not set too rapidly. They're two reasons why . . .

Dowell's New Cement Is Promising

The petroleum industry got its first real look this week at a brand new product: an oil well cementing material that contains no portland cement, is composed entirely of chemicals. The product, Dexet, has been designed especially for down-hole work by Dowell Incorporated, Tulsa.

Oil operators for years have recognized that many cements are not entirely satisfactory for setting casings and liners, or for sealing off formations down the hole. The slurry sets too quickly, or too slowly; or it shrinks and cracks on setting. Drilling muds and their additives often contaminate the cement, causing it to lose strength.

Various types of cements have been developed by operators and service companies in an effort to meet these difficulties. But all of them depend on portland cement in some form, with various ingredients being added.

Dowell has departed from this basic approach. The resultant product is said to set at controlled times, resist mud and additive contamination, and bind tightly to both pipe and formation.

Dexet is a mixture of an acid and two solids, which form an easily handled slurry.

The product is 35% inhibited phosphoric acid, combined with a powdered aluminous material and a powdered fluoride material.

The aluminous material contains a viscosity control agent, and the fluoride acts as the "accelerator," or control agent for the setting time.

When Dexet sets, it forms a complex aluminous cement, which, while possessing great strength and durability, is at the same time easy to "work."

The mixture now perfected can be used over a temperature range from 130F to 200F. Dowell is currently developing other mixtures which will allow its use from 70F to over 300F.

The material is suitable for setting casings and liners, for performing squeeze jobs, and for other types of remedial work. Dowell says it can be used in any oil-well cementing job where present-day cementing materials are now used.

Dexet has several unusual properties, Dowell reports. Among them:

Working and setting times can be controlled exactly. This is done by varying the amount of accelerator (fluoride material) used in the mix.

Contamination is resisted. More than 20% of mud, by volume, can be incorporated in the material without causing failure to set. Once set, Dexet has extremely low permeability and porosity; and under well conditions it shows no evidence of shrinkage.

Less heat is generated (chart). The more heat a cement generates, the quicker it sets, lessening the chances of an adequate job, particularly in deep holes where temperatures are already high.

Set Dexet can be easily drilled and perforated by conventional methods. In laboratory tests, the cement was perforated at a compressive strength as low as 400 psi. without fracturing or shattering. Cuttings do not affect most drilling muds.

It is resistant to action of well fluids. Crude does not affect it; prolonged immersion in brines, including sulfate and sulfite brines, does not cause rapid deterioration or substantial loss of strength.

Dowell concedes that its product will be more expensive than regular portland cement or some of the mixes that have been treated with additives. But it contends the increased cost will be more than offset by the advantages.

Another disadvantage is that the material has a tendency to crack and dry out when not under well conditions.

The significance of Dexet may be more than the development of a new product. It could mark Dowell's entry into the oil-well cementing business in a big way.

The company has been specializing in formation fracturing and acidization. It has done considerable cementing in Michigan and Canada, but has been less active along this line in other areas.

The company did not disclose plans for facilities to manufacture the new cement, but expects to have adequate supplies available soon.

Colorado Has First Unit Agreement

The first unitization agreement for Colorado was finalized Nov. 1. More than 95% of the working interest in the Adena field, second largest in the state, had signed up. Pure Oil Co., with approximately 37½% of the working interest, will be the unit operator.

It is estimated that a secondary recovery project to be installed will boost the field's ultimate production

by more than 17-million bbl. The type of secondary recovery operation to be attempted has not been decided, but water-flooding likely will be favored over gas injection. Oil wells in the field are showing steadily increasing gas/oil ratios due to the expanding gas cap associated with the field.

Adena has 186 producing oil and gas wells with a current allowable of 125 b/d per well, or 150,000 cu. ft. of gas, whichever comes first.

Adena was discovered in May, 1953, producing from the "J" sand (Dakota of Pennsylvanian Age) from an average depth of 5,650 ft.

The operators recently built a natural gasoline plant which produces approximately 55,000 gal. daily of LPG. About 16-million cu. ft. daily of residue gas is sold to Natural Gas Producers, subsidiary of Colorado-Interstate Gas Co., which moves it to the Denver metropolitan area.

Logging-Tool Trend: Combine Them

The perfect one-tool well logging instrument doesn't yet exist, and the trend is toward the use of more than one specialized devise to evaluate a well properly, a group of experts concluded last week.

A two-day Formation Evaluation Symposium at Houston, sponsored by the Gulf Coast Section, AIME, and the University of Houston's Petroleum Engineering Dept., indicates that continuous comparison of field experiences is showing the way toward additional improvements.

In the field of nuclear logging, the thought was expressed that development of the neutron generator-gamma ray spectrometer tool (PW—Aug.26 '55,p15) "will doubtless increase the utility of radiation logs."

A composite view of those presenting papers on future trends pointed strongly toward the combining of several electrical logging tools to provide simultaneous recording—and perhaps profiling a multiplicity of curves. Also a continuous swing toward the "focused" type of logging instruments was forecast to minimize the effects of mud invasion and readings from surrounding beds.

M. P. Tixier, of Schlumberger Well Surveying Corp., revealed that his company will soon offer a new well logging combination comprising three proven devices. He said the combination, when run with microlog or microlaterolog, "should permit the solving of most problems of log interpretation in the Gulf Coast."

The combination will permit simultaneous recording of these three methods of logging:

- Spontaneous or self-potential —a measurement of naturally occurring electrical potential in mud at different depths in the drill hole.
- The 16-in. normal—a method of measuring electrical resistivity of a medium surrounding a measuring electrode and a current electrode placed 16 in. apart down the bore hole.
- The 40-in. induction log—for measuring resistivity of formations by means of induced current with transmitter and receiver coils placed 40 in. apart.

Tixier said the combination will permit true resistivity to be obtained in thin formations, when drilling fluid has penetrated deeply into a formation, and when tight streaks make interpretation difficult.

Dr. Gordon Guerrant uses carefully measured amounts of fuel from a given lease in . . .

Needling Production of Natural Gases

A hypodermic needle has a role in a fundamental research study being conducted by Shell Development Co. of Houston to obtain better and more complete production from gas-distillate wells.

Called vapor-phase chromatography, the study deals with wells that produce gas heavily enriched with hydrocarbons which liquefy somewhat en route to the surface. The gas and liquids are separated at the surface with special treating units. Shell's Exploration & Production Research Laboratory is interested in bringing up more of the heavier liquid hydrocarbons.

This involves the regulation of pressure and temperature and, perhaps, the addition of materials to the reservoir. Some guides are already known. For instance, if paraffin is added to gas, and both pressure and temperature are increased, the paraffin can be made to go into solution with the gas. But too little is now known to reach any general conclusions. And that's where Dr. Guerrant and his hypodermic needle enter the picture.

The gas is injected into an analyzer apparatus and is broken down into its component hydrocarbons. Results are correlated with other information, and, eventually, better methods of predicting reservoir conditions may evolve.

That, in turn, should lead to better production practices and a greater yield of the heavier hydrocarbon materials from gas-distillate wells.

What's New / IN PRODUCTION

Drilling Highlights

California—Union Oil Co. of California and Richfield Oil Corp. have a significant discovery in the Santa Cruz Mountains, San Mateo County, 40 mi. south of San Francisco.

The test was completed flowing at a rate of 142 b/d of 41-gravity crude, and 127,000 cu. ft. of gas through 14/64-in. choke. Pay is the Butano sand of Eocene age, and completion depth is 2,206 ft., plugged back from total depth of 3,804 ft.

The wildcat is in rugged timbered country where winter rains and a total lack of production facilities are expected to hamper rapid development.

The discovery touched off a leasing scramble led by Union, Richfield, Humble Oil & Refining Co., Western Gulf Oil Co., and The Texas Co.

Sand may be a problem at the new producer. The well sanded up about 20 hours after completion, necessitating remedial work. However, at this stage the wildcat is regarded as the most significant discovery ever completed in the northern California sector.

Oklahoma—An-Son Petroleum has an indicated Hoover sand gas discovery in Harper County. Tested at 4,169-93 ft., the wildcat flowed at an estimated 5-million cu. ft. daily. The well was drilled to 7,173 ft., and landed casing through the Morrow at 7,125 ft.

Oklahoma—Reda Pump has an oil discovery 5 mi. east of Oklahoma City and 2 mi. from the nearest producer. The Oklahoma County wildcat found the formation at 5,942 ft. and ran a drillstem test at 5,943-76 ft., open 20 min. Gas showed in 5 min. and oil in 18 min. at an estimated rate of 25 bbl. per hr. Recovery was 4,360 ft. of 33-gravity crude. Drilling will continue to the Wilcox, or about 6,600 ft.

Oklahoma—Warren Petroleum Corp. has found oil in the Morrow sand, 5 mi. east of similar production in Beaver County, in the Panhandle. A drillstem test was made at 7,255-81 ft., open 1 hr. Gas showed in 25 min., flowing at the rate of 285,000 cu. ft. daily. Recovery was 5,300 ft. of 38-gravity crude and 200 ft. of heavily oil- and gas-cut mud. The Camrick pool to the west, mostly in Texas County, produces both oil and gas from the same zone.

Southwest Texas—Humble Oil & Refining Co.'s Strawn discovery 2 mi. southeast of the Vinegarone gas area, Val Verde County, flowed gas at the rate of 13-million cu. ft. daily through open 2-in. tubing from perforations of 10,136-90 ft. It has previously made 3.3-million cu. ft. daily on test at 10,331-91 ft.

West Texas—A Stanolind Oil & Gas Co. Ector County prospect, 15 mi. north of Odessa and 4 mi. southwest of the Midland Farms Ellenburger field, had a flush flow of oil from the Wolfcamp. On drillstem test at 8,334-450 ft., open 1 hr. and 48 min., it surfaced gas in 7 min., mud in 36 min., and oil in 48 min. It then flowed 52.38 bbl. of oil into tanks in 1 hr. Gas volume was 70,000 cu. ft. daily.

West Texas—George W. Strake, of Houston, has a flowing Strawn lime discovery at a test 10½-mi. north of San Angelo, Tom Green County. It was finaled for a calculated 24-hr. potential of 266.67 b/d of 47.6-gravity oil, based on 16-hr. flow of 197.86 bbl. through 16/64-in. choke from perforations at 6,398-408 ft. Nearest Strawn production is in the Harriett field, 8 mi. southeast.

East Texas—Maxwell Drilling Co. has completed a Travis Peak gas-distillate discovery in the southeast part of the Blocker field, Harrison County. Producing from perforations at 6,624-34 ft. and 6,646-54 ft., the test rated a daily calculated open flow potential of 15-million cu. ft. of gas daily plus 16 bbl. of distillate per million ft. of gas.

South Louisiana—Announcement of the completion of a Texas Co. deep test in Terrebonne Parish coincided with the arrival of company officers and directors for a meeting at New Orleans. The test, on the southwest flank of Caillou Island field, flowed 49 b/d of 34-gravity oil through ⅛-in. choke from Miocene sand perforations at 11,916-35 ft.

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Texas Sells 34 Wells

A bonus offer of $304,111 was the top offer received by the state of Texas for 34 producing oil wells in Duval County. The bid was made by Norman S. Davis, trustee, of San Antonio.

Sale of the wells, which is subject to approval of Land Commissioner J. Earl Rudder and operators of the Duval County Ranch Co., will be the first of any importance by the state. Usually the school land board and other state agencies sell leases only.

This sale came about after the state won 34 wells in three Duval County oil fields in a lawsuit with The Texas Co. (PW—Sep.30'55,p13). The latter had relied on what it considered valid mineral leases from surface owners.

Texaco offered $276,511 at the sale. Other bids were $266,667 from La-Gloria Oil & Gas Co., of Corpus Christi, and $135,000 from P. W. Pitzer, Jr., of Breckenridge.

Besides bonus, the state is requiring a one-fourth royalty on oil and gas produced. Duval County Ranch Co., as surface owner, would get one-half of the state's portion.

Meanwhile, it was revealed that the school land board will again ask higher royalties, rentals, and bonuses in the December lease sale. Several months ago, the board hiked its minimums to $15 an acre cash bonus, $3 per acre annual rental, and one-sixth royalty to keep pace with the federal government's demands for offshore lease rights.

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Much of the Florida acreage recently leased to The California Co. may be outside the state's jurisdiction. The U.S. Interior Dept. has so advised the trustees of the Florida Internal Improvement Fund, a state organization.

Interior was referring to the 1953 congressional act which held that Florida's territorial boundaries extend three nautical miles into the Atlantic Ocean and three marine leagues into the Gulf of Mexico. About 500,000 acres of the leased lands, mostly in the Florida Keys, would be affected if Interior's position is correct. The company paid about $1-million for the leases.

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Louisiana's oil allowables will be up in November and Kansas' will remain the same.

The Louisiana State Conservation Commission set allowables at 732,496 b/d, up 11,620 b/d from October. North Louisiana was allocated 127,977 b/d, and South Louisiana, 604,519 b/d.

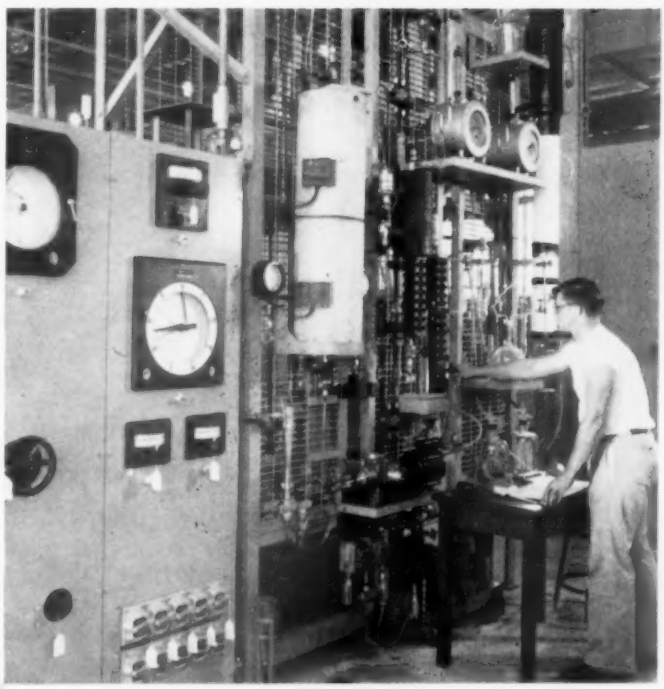
The Kansas State Corporation Commission made no change in its October allowable of 330,000 b/d. This figure does not include condensate.

UOP's NEW LAB has an underground bomb shelter that can be used as an auditorium or subdivided into small conference rooms.

UOP 'Researched' Its New Research Lab

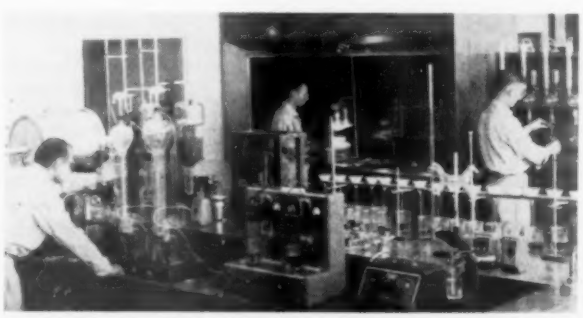
THE DESIGN of Universal Oil Products' new research laboratory at Des Plaines, Ill., was evolved after about five years of visiting and evaluating lab facilities all over the world. Some of the features adopted in the new building, that was dedicated last week, include locating all labs on the north side to insure best possible light, and placing pipes and lines for water, gas, hydrogen, electricity, and other services in enclosed shafts. Laboratories operating on a continuous basis are in a separate wing.

GLASS BLOWERS produce the special lab equipment needed for research.

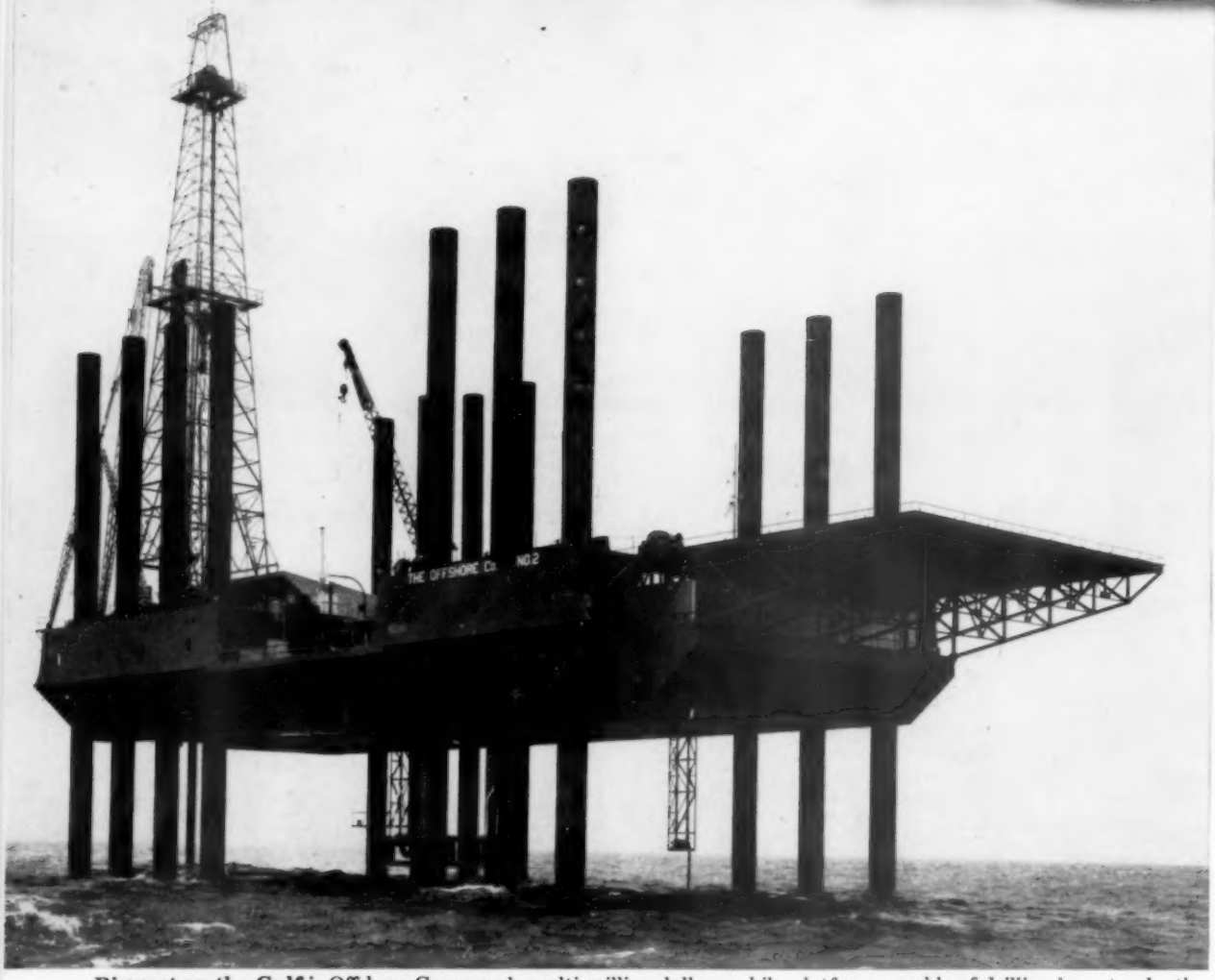


PLATFORMING PROCESS bench scale unit, a working miniature of a modern unit, is a feature of the semi-works wing of the laboratory.

QUARTZ EMISSION spectroscope is used for analyzing catalysts to identify various trace metal contaminants.



CHEMICAL ANALYSES are made in the analytic laboratories to assist in solving problems encountered by UOP process licensees.



Biggest on the Gulf is Offshore Company's multi-million dollar mobile platform capable of drilling in water depths of 100 feet to explore for the rich oil and gas reserves of the Miocene Trend miles below the ocean floor.

The Big Wildcatters Are Choosy

Where they're playing for million-dollar stakes, oilmen count on Pittsburgh Steel Company's seamless oil country goods to help lower the odds.

Offshore Company's $3.8 million mobile platform No. 2 is the largest entry in the sweepstakes for the rich oil and gas reserves below the ocean floor in the Gulf.

This ocean-going monster weighs as much as a tanker and has deck dimensions slightly smaller than a football field. It carries a 146-foot high drilling rig on its back, is generously equipped for fast drilling, and has first-class crew quarters.

When it moves into position, its fourteen sea legs are lowered and air-jack driven into the ocean floor. Each is a 6-foot diameter steel caisson, 200 feet long and weighing 100 tons. Then the barge climbs up the caissons until it is at a safe operating level above water, and begins drilling.

Once on location its towering framework can be battered by hurricane winds and lashed by waves. Yet it won't budge. Its powerful drilling equipment is built to stab through miles of earth beneath the ocean to reach pay quickly.

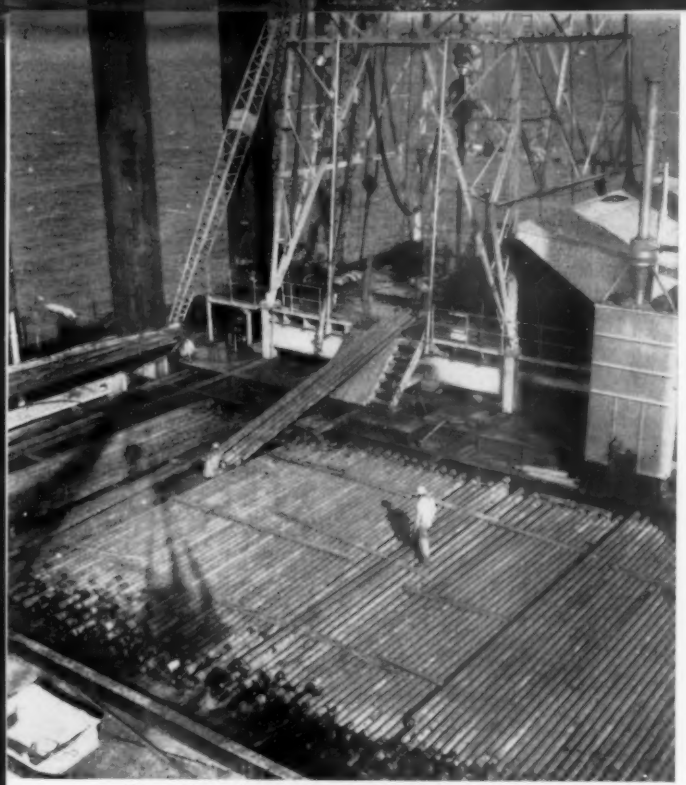
When you consider the large investment and heavy costs involved, you can understand why oilmen who operate equipment such as this can't afford to take chances on equipment or service.

The pay-off comes on the footage of hole drilled. All time and expense that does not deepen the hole, lowers profits. Equipment failures or service delays pile up losses rapidly.

The fact that this rig is equipped with Pittsburgh Steel Company's seamless drill pipe is a credit to the quality of the product. To oilmen who have relied on Pittsburgh seamless for more than a half-century, its selection is not surprising.

Offshore No. 2 is using 5-inch OD Grade E Range 2 drill pipe. It has a minimum yield strength of 75,000 psi, and needs every pound of it.

Rotating at 120 rpm and drilling an average of 500 feet of hole a day, as it was on the operation shown



Seamless drill pipe from Pittsburgh Steel Company, racked on the barge deck, is fed length by length into the hole as it deepens in the race to reach pay.

High above the ocean a derrick man stabs a stand (three 30-foot lengths) of drill pipe into the hole. This pipe goes in at better than a stand a minute.

here, the drill pipe at the top of the hole may be under a tension of well over 100 tons. It is subject to continuous fatigue and torsion. Abrasive and corrosive wear also are always present.

Pittsburgh seamless, along with other equipment for Offshore No. 2 was supplied through one of the independent distributors listed at right. The selection of an independent to provide the fast and flexible service needed for a rig such as this was natural.

As the barge reached its finishing stages prior to launching, the independent's field representative stood by on 24-hour alert. The mobile telephone in his car was busy with calls to his warehouse for instant delivery of required parts.

Now he calls regularly at the dock from which the rig is serviced, continuing his 24-hour, 7-day a week vigil to cut any costly delay that might occur. He provides the same experienced, personal service—free from red tape, cluttering paperwork, and remote control—that is the specialty of all independents on the list.

The next time you need a string of drill pipe, casing, or tubing, why not get the pipe of your choice through the supplier of your choice? Specify Pittsburgh seamless!

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Wichita Falls, Texas

Iverson Supply Company
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New York 7, New York

Lucey Products Corporation
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McJunkin Corporation
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Midland Supply Company
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Inerting: A Better Way to Fire Safety

The use of inert gases to prevent fires and explosions in vessels containing flammable liquids or vapors may find a wide application in refineries, petrochemical plants, and other divisions of the oil industry.

The National Fire Protection Assn. recently gave at least an unofficial approval to the "inerting" principle of fire prevention. Full endorsement may come later should NFPA decide to remove the "tentative" status from its code outlining this fire-prevention procedure.

The first public presentation of a special NFPA committee investigating the use of inert gases in fire prevention was made at the 43rd National Safety Congress, in Chicago, by Arthur P. Dunlap, supervisor of the process safety department of Carbide & Carbon Chemicals Co.

Inerting, as this method is called, is actually the adoption of a basic principle of fire fighting to fire prevention: the exclusion or reduction of oxygen in an enclosure to a point at which combustion cannot occur.

As applied to storage tanks, this is done by introducing inert gases into the space between the level of flammable liquids and the top of the tank to keep oxygen (air) from filling this space. Reducing the oxygen to a level at which combustion cannot be supported removes one of the three essentials for causing fires: a flammable material, sufficient oxygen to support combustion, and a temperature high enough for combustion to occur.

One important fire-prevention application is the use of inert gases in purging flammable vapors from vessels to prepare them for cleaning, inspection, or introduction of liquids or vapors other than those previously contained. Likewise, this applies to the introduction of inert gases in a vessel to displace oxygen prior to filling it with flammable materials.

Purging is used in refineries to displace flammable or harmful vapors in process units prior to turnaround of units for inspection or repair. And after a unit has been down, the air in vessels and lines is purged before starting the unit up again.

Storage tanks, tank trucks, and tank cars also are purged before cleaning and before filling with different materials than previously contained in these tanks. Steam is used in most purging operations; in some cases purging is accomplished by simply ventilating the enclosure. Now some oil companies are using inert gases in purging.

Which inert gas is used in fire and explosion prevention depends on a number of variables, including physical and chemical properties, costs and availability, and the nature of the flammable materials that would be involved.

Such gases as helium, neon, argon, nitrogen, carbon dioxide, and pure carbon monoxide can be used. However, while nonflammable, some of these could be reactive when in contact with certain materials or catalysts. Also cost is a major factor.

Other factors to be considered include the volumes and supply pressure that would be required in a refinery or tank farm, the need for an oxygen-free versus an oxygen-deficient method in fire prevention, or whether the inert gas needs to be moisture-free to avoid product contamination.

In the applications of inerting so far in the petroleum industry, carbon dioxide and purified carbon monoxide have been the most commonly used materials.

Inerting is not a new method for fire prevention; it has been used by at least one major oil company for more than 25 years. Other companies have used it for shorter periods of time. Still others are considering it.

An official endorsement of inerting by the National Fire Protection Assn., however, would greatly encourage a much wider application of this method within the oil industry as well as in other industries handling large volumes of flammable materials.

Sun Oil Co. was one of the pioneers in using inert gases for protection against fire and explosions, both on its tankers and in its refineries. The company first tried inerting on its tankers back in the late 20s; it now has all of its ships equipped to fill tanks with inert gases as crude oil or refined products are pumped out.

As in the case of most tankers, Sun ships are equipped with low-pressure CO_2 systems, and this gas is available

Valves to Keep a Refinery Running

This array of valves is just a minor portion of the thousands of items of equipment that will be used in Tide Water Associated Oil Co.'s Delaware City (Del.) refinery. Before the 130,000 b/d plant is finished late next year an estimated 50,000 truck shipments and 10,000 freight carloads of material will have been delivered to the site. In addition, large components, such as major portions of processing units, are brought in by barge. Rush items are shipped in by air.

for introduction into the ships' tanks to prevent oxygen from entering while the tanks are being emptied or filled. Also on Sun tankers, carbon monoxide is produced by incomplete combustion. This gas is washed to remove contaminants, leaving a purified CO which is used as the inerting material.

In the refinery, Sun uses washed flue gases as the inerting material to purge process units and to displace oxygen in units prior to going back on stream. Sun reports that purging with inert gases has one major advantage over purging with steam: After purging with inert gases and ventilation, the vessels and units can be entered immediately. But when steam is used, the purged units have to be cooled first.

There are definite limitations on the use of inert gases. From an economic and practical standpoint, some oil company safety engineers say inerting systems are not generally needed in tank farms. The main reason is that the cost to install such systems is high. Frequently it would be way out of proportion to the protection needed.

Some other considerations of concern are:

- What precautions are to be taken to insure that an inert gas is free of moisture, or of constituents that might contaminate the material to be protected. One point stressed by Carbide's Dunlap is that contamination by absorption might occur in long-term storage.
- What type of distribution system will be needed to assure that peak requirements can be filled at all points of use.
- What procedures can be used to determine that an inert atmosphere is being maintained.

The answers to these problems depend on the extent of the uses of inerting procedures. Sun, for example, is satisfied with the use of this fire prevention method in the applications the company has made of it. Dunlap predicts that more extensive use of inerting may very well result in new ways to reduce these limitations.

Regardless of the present limitations, Dunlap predicts that the use of inerting systems will: (1) reduce personnel injuries, property losses, and production interruptions due to fires; (2) possibly justify a lowering of insurance rates for risks where this type of protection is applicable; (3) mean that instrument manufacturers should find a good market for portable oxygen indicators and for more reliable and less costly controls for inert gas installations; and (4) reduce the need for certain other fixed protection systems.

What's New / IN REFINING

Cosden to Make Styrene

Cosden Petroleum Corp. has awarded a contract to Badger Manufacturing Co. for the construction of a $2.9-million styrene plant at its refinery at Big Spring, Tex.

This new unit is an addition to the major expansion and modernization program under way at the Cosden refinery (PW—Sep.2'55p25). Completion of a 3,868 b/d Rexformer to make 98 F-1 clear octane blending component for gasoline will make it possible to convert the company's existing platformer to operate 100% of the time in preparing aromatic feed stock for the integrated Udex unit. From this unit Cosden will have benzene available, which, combined with ethylene, is the base feed stock for making styrene.

•

Montana Sulphur & Chemical Co. plans to start construction immediately of a 42-tons-a-day sulfur plant near Billings, Mont. Montana Sulphur, a recently formed company, will use hydrogen sulfide gases from the nearby refineries of Carter Oil Co. and Continental Oil Co.

•

Sun Oil Co. has successfully completed the initial operation of a new process revision to the water supply and waste disposal system at its 85,800 b/d refinery at Toledo. The new system embodies comprehensive control of all plant waste water, and maximum reclamation of the spent water for re-use within the refinery with a minimum of pretreatment. It also makes available a substantial water supply for emergency fire protection.

•

Gulf Oil Corp. will receive an award from New York state and city civil defense authorities today for its plant protection organization at its 19,000 b/d Staten Island (N. Y.) refinery. A plant protection pennant and accompanying citation and a second citation for complying with medical supplies stockpiling requirements will be presented to William M. Braybrooks, refinery superintendent. The pennant and citation will be presented to the company for outstanding organization, planning, and training for the protection of personnel and equipment.

•

Lago Oil & Transport Co. plans to expand the distillate upgrading facilities at its 440,000 b/d refinery at Aruba, N. W. I. The Jersey Standard affiliate has awarded a contract to Badger Manufacturing Co. to expand the existing Edeleanu solvent extraction unit by 20,000 b/d. Cost of the project is estimated at $3.2-million.

•

Ethyl Corp.'s new gasoline testing laboratory in Houston is now officially in operation. The new laboratory, part of Ethyl's nationwide gasoline testing service, is equipped with the latest equipment for measuring gasoline characteristics. Representatives of various oil companies inspected the laboratory last week during an open house celebration. The facilities will offer "same day" service on test results to refiners throughout the Southwest.

•

Engineering work has started on three major operating units of American Oil Co.'s new 35,000 b/d refinery near Yorktown, Va. (PW—Aug. 26'55,p17). Ralph M. Parsons Co., of Los Angeles, has been awarded a contract for building the units—a 7,600 b/d Ultraformer, a naphtha desulfurization unit of the same capacity, and a 15,000 b/d gas-oil desulfurization unit. Construction will begin early next year and is scheduled to be completed before the year ends. The Parsons contract is the sixth in a series made by Amoco during the past 18 months.

•

A Royal Dutch Shell affiliate's refinery at Geelong, Australia, was closed last week after negotiations with 10 unions failed to settle demands for a $5.60 weekly special compensation. The unions demand this payment as compensation for alleged obnoxious odors that the unions claim are injurious to the health of the refinery employees. About 2,000 are employed in the refinery. The plant's capacity of 36,000 b/d is equal to about one-third of the Australian petroleum demand.

1956: The Boom Is Slowing Down

The best way to forecast petroleum demand for the next six months would probably be to have an accurate weather forecast. But since we don't know how to do that, we've got to go by the business statistics. Economic forecasting is always chancy. But in recent years, it's been a good deal better than guesses on the weather.

So here are some preliminary forecasts on business from now till mid-1956—and how the oil industry will be affected:

(1) Automobile production will be very high for the next few months. But production in the spring of 1956 will be below 1955 levels. So the number of new cars going on the road will be less than in 1955. But there will still be more than any previous year. So gasoline sales will again set new records—but the increase won't be so spectacular as it was this year.

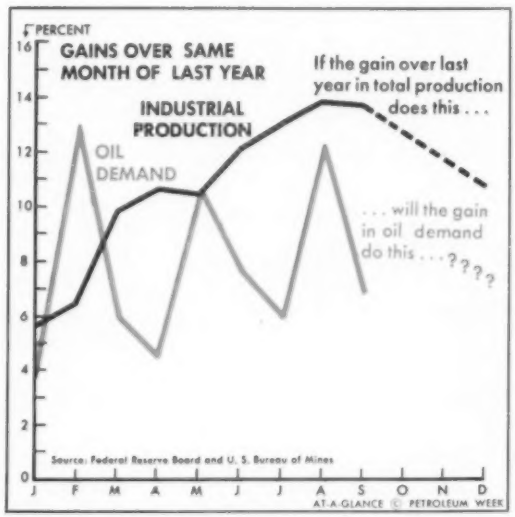
(2) Industrial production—which governs the demand for heavy fuel oil and diesel fuel—will show smaller increases from now on. And this may be a pretty fair guide to the rate of gain for the oil industry as a whole. (The production index includes automobiles. So it does reflect most of the oil-important factors—except the weather.)

* * * *

. In other words, the boom is going to slow down. You can see it on the chart. In the past few months, industrial production has run 12% to 13% ahead of 1954. And petroleum demand has averaged 8½% gains. Since oil is used throughout the economy, it gets a lift from the general boom. And lately, the lift has been terrific.

But you can't expect this rate of increase to continue. Right now industrial production is close to capacity. There isn't the manpower or the materials to push it much higher over the next few months. At last count, there were only about 2-million people unemployed in the United States, which is about as low as you can get with normal peacetime turnover. So there's a limit on how much the industrial production index can go up. And that puts a limit on the increase in petroleum demand.

Besides, as we go into 1956, there are going to be some pretty tall figures to stack up against. The industrial production index for January, 1955, for example, was 132 (vs. 125 in 1954). In June, it was 139 (123 in 1954). Even if the index were to average 144-145 for the first half of next year—which is a little above the trend shown on the chart—it would only beat 1955 by 7%. And if petroleum demand tags along, the increase over 1955 would be between 4% and 5%.


PERCENT
GAINS OVER SAME MONTH OF LAST YEAR
If the gain over last year in total production does this . . .
INDUSTRIAL PRODUCTION
OIL DEMAND
. . . will the gain in oil demand do this . . . ? ? ? ?
16
14
12
10
8
6
4
2
0
Source: Federal Reserve Board and U. S. Bureau of Mines
J F M A M J J A S O N D
AT-A-GLANCE © PETROLEUM WEEK

Gains in industrial production are likely to be smaller from now on. And this may mean a slower rate of growth in petroleum demand.

What about a decline in general business? Forget it—at least for the next six to nine months. Some of the very sensitive indicators—such as stock prices and residential building contracts—have turned down. But these usually signal a turn in business a considerable distance ahead, rather than anything imminent. Business is winding up the year with a raft of new orders on the books, and with low inventories—even of automobiles. As noted above, there are numerous shortages of materials and of plant capacity.

So you can bet that in the months ahead we're going to have more plant expansion, more inventory building, and sustained business activity. Production can't go up much till we get some more capacity. But it won't go down either, not while so many things are short. That's why business forecasting this year is a lot easier than weather forecasting.

* * * *

One major question is how much gain we'll get in prices. Even a small gain in industrial production, in the present tight supply situation, can lead to a lot of price boosts. Inflation is still a danger. Will this general price pressure spill over and affect crude oil prices?

As we said at the start, it probably depends on the weather.

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EXPLORATION in Agrigento is only part of boom in Italy's island province as . . .

Sicily Gains in Oil Search

It's a safe bet that U. S. oil companies will give Italy's mainland a big play if the upcoming revisions of its oil law gives them the same chance they have in Sicily. Oil exploration—and development—in this island province are bustling, largely due to activities of U. S. companies.

As Sicilians love to point out, the semi-autonomous province has had more oil search activity in the past few years than the entire mainland has had in 20. And now a U. S. company is producing twice the oil from the one Sicilian field so far discovered than the Italian government's oil company is producing from its entire holdings on the mainland.

Reason for the intensive Sicily activity is, of course, its oil law. Enacted in 1950, it opened the island to development by private companies, foreign and domestic. Now half its total acreage is sewed up, with several additional concession applications pending.

In contrast to the mainland's antiquated mining law, Sicily automatically guarantees exploitation rights on an exploration concession once oil is found. Concessions are granted for a three-year period, extendable for two three-year terms. Acreage, limited to 247,000 acres per company, is automatically reduced by 20% at the end of the first term, and by 30% at the end of the second.

The latest list of concessions in Sicily shows that foreign companies—almost all American—hold about 45% of the acreage granted.

Gulf Italia, operating subsidiary of Gulf Oil Corp. in Italy, holds the only exploitation concession, which covers 181,491 acres. In combination with other groups, Gulf holds exploration concessions also. Mediterranean Oil Co., owned 65% by Gulf and 35% by MacMillan Petroleum Corp, of Los Angeles, holds 171,860 acres. With Montecatini, Gulf was granted a total of 637,870 acres through several jointly owned companies. The Italian affiliate of Standard Oil Co. (N. J.) was granted 209,698 acres in conjunction with Rasiom, an Italian refining company that also operates Sicily's sole refinery. Other U. S. holdings were granted in the name of Charles B. Wrightsmann, 18,483 acres; and Western Geophysical Co. International, 202,710 acres.

British Petroleum Co., with 160,256 acres, is the only other foreign concessionnaire. Ente Nazionale Idrocarburi, Italy's state-owned company, holds 888,913 acres. Private Italian companies hold 1,053,149 acres.

"What we've done in Sicily shows what private enterprise could do if it had a chance in the rest of the country," says Prince N. Pignatelli, general manager of Gulf Italia. Last year Gulf brought in Sicily's first oil discovery at Ragusa. Now its eight completed wells are producing about 3,600 b/d. In contrast, another Gulf affiliate also struck oil this year on the mainland, but has been forced to shut down until the new oil law clarifies its rights to an exploitation permit.

Thus far, Pignatelli says, Gulf Italia has invested more than $8.5-million in drilling the Sicily wells. More wells planned for the coming year call for a further $13-million investment.

Though Gulf has led Sicily's oil search, other companies also are actively at work, some of them still in the exploratory stage.

Much of Sicily is now considered prospective oil territory—but the mainland's pastures look even greener. ENI's monopoly territory in the Po Valley of northern Italy, now producing large quantities of natural gas, is the most promising oil area. But the Gulf discoveries (made by Petrosud, which Gulf owns jointly with Montecatini) in the Alanno district of the Abruzzi region, east of Rome, opened up further oil territory—now confirmed by the recent ENI strikes in the region (PW—Oct.7'55,p28).

Last week Italy's cabinet approved the draft of revisions for the mainland's oil law (PW—Oct.21'55,p26). So far it looks as though private companies would play second fiddle to ENI, which is not subject to the area limitations suggested for concessions. ENI, as expected, also retains its Po Valley monopoly in the draft proposals. Elsewhere single exploration permits would be issued to private companies for 123,500 acres. One company may hold three such permits in any one regional district. Maximum acreage for one company on the entire mainland would be limited to 741,000 acres.

Permits would be issued for two-year periods, with two extensions. Acreage would be reduced 25% after each two years.

Exploitation concessions would be limited to 24,700 acres each, with eight such permits permissible for one company.

The government's take is fixed in the current draft at 60% of the gross value of oil after production costs are deducted.

The draft has now passed to special committees of both houses of Parliament for study before it's presented for debate. Sources in Rome expect it will be several months before debate is concluded and the final version of the law is passed.

Guatemala set for concession rush now that it's . . .

Open for U. S. Oil Firms

Last week Guatemala's government signed the final decree that opens the country to oil exploration by U.S. companies. It expects some 25 firms, both independents and majors, will now file for exploration concessions under its new oil law.

The new petroleum code was drafted with the aid of U.S. experts, with the specific aim of attracting U.S. capital. It became law in August, but U.S. oil companies have been holding off applications for concessions until they could study the regulations that officially implement the law (PW—Aug.5'55,p31). These were signed in Guatemala on Oct. 24.

Several U.S. companies already have announced intentions of filing concession applications, or indicated that they would "probably" file. Others are still undecided.

Standard Oil Co. (Ohio) announced it was filing its application immediately and has formed Sohio Caribbean Co. as a new subsidiary to undertake exploration in Guatemala. Atlantic Refining Co. also is going ahead with its application. Amerada Petroleum Corp. has set up a new subsidiary, Amerada Petroleum Corp. of Guatemala. Standard Oil Co. (N. J.) and The Texas Co. probably will apply for concessions. Still undecided are Union Oil Co. of California, Socony Mobil Oil Co., Houston Oil Co., and Standard Oil Co. of California. Conorada Petroleum Corp. has not yet reached a decision on whether it will file an application on its own account, although its parent companies (Continental and Ohio Oil, as well as Amerada) will probably file individually.

No oil has been found in Guatemala, but its oil potential has been under study by various groups for some years. Center of interest is the 10-million-acre northern province of Peten. It lies west of British Honduras and east of Mexico, and is part of the same sedimentary bed that is oil-bearing in Mexico. Exploration will be difficult because the province is densely jungled and inaccessible. It has virtually no roads; none at all that connect it with the other sections of the country.

Companies that have done exploratory work in the area in the past include Jersey Standard, Sohio, and Ohio Oil. Since the new oil law was promulgated this summer other groups—Conorada, Standard of California, Union Oil, Texaco, and Sloan Investment Co., of New York—have been carrying on surface exploratory work under reconnaissance permits granted to them.

In general, the new oil law is considered satisfactory, although some objections have been voiced by U. S. oil men to drilling obligations imposed. These are considered rather stringent in view of the country's yet unproved oil potential and the high cost of operation in Peten.

The new law grants exclusive exploration rights for areas from 12,350 acres to 988,000 acres. One company may hold 10 rights, but not more than 988,000 acres. These rights are granted for six years, with two two-year extensions, providing exploratory drilling has started. Exploratory work must be started within 90 days of granting of the concession, and minimum investments are specified. Discovery of oil automatically brings an exploitation permit.

Exploitation rights are granted for areas of from 2,470 acres to 61,750 acres for a 40-year period, with one 20-year extension. Ten permits may be held, but not more than 494,000 acres. Drilling must be started within six months after granting of exploitation rights.

Producers pay income taxes and a 12½% royalty of oil produced and get a depletion allowance of 27½% of gross income less royalty payments.

If the final number of concession applicants is as large as expected, overlapping requests may have to be resolved by competitive bidding. If this happens, it will probably be several months before any concessions are granted. Under provisions of the new regulations, applications filed up to Nov. 23 will be treated as if they had been filed simultaneously, with priority ruling thereafter.

What's New / ABROAD

Plans New Oil Deal

JAMAICA—Stanolind Oil & Gas Co. is getting set for another move into Caribbean oil exploration. Now it's about to add extensive concessions in Jamaica to the even more extensive holding that it acquired recently in Cuba (PW—Sep.16'55, p23).

Last week the company had reached tentative agreement with Base Metals Mining Corp., Ltd., of Toronto, to take over its 5½-million-acre concession in Jamaica for a "substantial sum of cash." Stanolind is committed to spend a minimum of $2-million on development by June 21, 1958. The Canadian company will retain a 25% interest in the concession. According to an earlier announcement by Franklin D. Roosevelt, Jr., chairman of Base Metals, that company will not contribute to further development costs until production begins. Half of Stanolind's minimum investment, he said, would be for drilling. Meanwhile, Stanolind said "certain conditions" would have to be ironed out before the agreement is signed.

Base Metals has held its Jamaica concession for the past two years and had been exploring the previous year as well. The first wildcat drilled found noncommercial quantities of gas and oil, and a second site has already been selected for drilling.

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More U. S. Oil Funds?

BOLIVIA—A new petroleum code designed to attract more foreign capital into the oil industry was approved last week by the Bolivian government. The new code governs operations of Yacimientos Petroliferos Fiscales Bolivianos, the state oil monopoly. It lifts all import duties on all machinery and equipment for oil exploration and development, and all export duties placed on petroleum products.

Thus far Glenn H. McCarthy, Texas independent, is the only foreign operator who has ventured into Bolivia recently. Years ago Bolivia had expropriated oil fields held by Standard Oil Co. (N. J.), but three years ago McCarthy signed a 35-year contract with YPFB when a new government invited foreign capital into oil development (PW—Sep.2'55,p27).

Revision of the oil code indicates Bolivia hopes to grant further development contracts to foreign companies. Climate for U. S. investments in the country is now considerably improved

since Bolivia and the U. S. signed an investment guarantee agreement in September. Now U. S. investors are guaranteed conversion of Bolivian earnings into dollars and are protected against loss of capital through expropriation or confiscation.

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1956 Investment Set

EGYPT—An American group is planning to invest $12-million next year to continue its oil exploration in Egypt's Western Desert. Thus far Egyptian American Oil Co., operator for Continental, Cities Service, Ohio Oil, and Richfield, has spent $14-million in its two years of work in Egypt.

In addition to its first wildcat, now drilling at Borg el-Arab, Egyptian American is preparing to drill two new test wells (PW—Oct.14'55,p29). The first of these will be spudded shortly, probably between Marsa Matruh, on the Egyptian coast, and the Siwa oasis, inland. The second will be started within the next two months. Site has not been specifically fixed but is expected to be in the Wadi Natrun area, just west of the Nile Delta.

Aerial photography of its 60-million-acre holdings has now been completed by Egyptian American. Currently, eight surface geological parties and three seismic crews are at work over wide areas of the concession.

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MEXICO—A U. S. contractor will play an important role in Mexico's plans for expanding export sales of natural gas. E. W. Pauley and Petroleos Mexicanos both are expected to intensify development drilling in a 100-mi. border area of northern Mexico to increase already large known reserves of gas.

Two of the three fields in the Reynosa area from which Pemex will deliver gas to Texas Eastern Transmission Corp. under its recently concluded contract (PW—Oct.7'55,p12) were developed by Pauley under his agreement with the government oil monopoly.

If the Texas-Eastern contract is approved by the U. S. Federal Power Commission, Pauley will be getting 18% of the value of gas he delivers to Pemex to fulfill the agreement.

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FRANCE—A new oil strike last week put another fillip into France's booming oil search. Societe de Prospection et Exploitations Petrolieres en Alsace (PREPA) hit oil at 4,691 ft. in a wildcat near Mulhouse, in eastern France, just north of the Swiss border. The well is just south of Pechelbronn's small Staffelfelden field in southern Alsace. It flowed at the rate of 76 bbl. an hour, and was capped after a flow of 100 bbl. PREPA, owned by Pechelbronn in conjunction with other private and government interests, holds exclusive exploration rights to a 1,455-sq. mi. area in the Alsace region.

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IRAQ—The government is itching for an early solution to the transit fee disagreement between Iraq Petroleum Co. and Syria. It has dispatched a special representative to Damascus in hopes that he will be able to effect a settlement of the problem that is acceptable to IPC—and favorable to Iraq's interests. The international company, Iraq feels, will pump more oil out of its Iraq fields once it has settled its dispute over pipeline transit fees with Syria and has received permission to divert two inactive pipelines from their terminal points in Haifa, Israel, through Syria to Sidon, Lebanon.

Iraq's oil revenues, which have been growing by leaps and bounds in the last four years, are expected to top $204-million this year (PW—Jul.29 '55,p30).

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CUBA—One of the U. S. independents now exploring concessions in Cuba is getting set to drill a second wildcat in the central basin area. Cuban American Drilling & Exploration Co. will stake its Cristales No. 1 well about 10 mi. east of Cuba's producing Jatibonico field. Site of the well is also 10 mi. southwest of Adelaide No. 1, which was drilled to 5,280 ft. It encountered some shows of oil but was not productive.

The company is wholly owned by Cuban American Oil Co., a stock company organized by G. H. Vaughn Jr. and H. W. Klein, of Dallas, and Tevis F. Morrow, of Los Angeles. It has been conducting extensive reflection seismograph work on its million-acre concession in Camaguey province for the past 14 months.

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KUWAIT—Crude oil output was cut again in September for the second month in a row, but remained 9% higher than a year ago. Production averaged 1,016,545 b/d, down from 1,043,296 b/d in August, according to Kuwait Oil Co., Ltd. Average output in September, 1954, was 931,041 b/d.

Esso Loads Crude From Parentis

Steadily increasing output from Esso Standard S.A.F.'s Parentis field, in the Marseilles region of France, is loaded at a terminal on the estuary of the Gironde River. Much of the Parentis crude is carried to Esso's Port Jerome refinery in northern France and accounts for a growing percentage of the plant's 75,000 b/d throughput. Production from the Parentis wells, now running above 14,000 b/d, has more than doubled since the end of last year. Two new wells are now drilling.

Chalk Fits Storage Needs

Processors and marketers of liquefied petroleum gas now have another geological formation to use for underground storage—chalk.

Two Oklahoma marketers of LPG are excavating a storage site in an Alabama chalk formation. This is the first underground storage facility for LPG in Alabama, and it's believed to be the first storage cavity ever made in chalk.

Tuloma Gas Products Co. and Sinclair Gas & Oil Co., both of Tulsa, are the firms excavating the cavity (PW—Oct.21'55,p12). Tuloma will operate the project. The site is a bed of Selma cretaceous chalk, near Demopolis, Ala., about 100 mi. southwest of Birmingham.

The development offers the possibility of greatly increased underground storage of LPG, since chalk is found in many areas not now served by other types of LPG storage, such as formations of salt, sand, or shale.

The Selma chalk formation outcrops (is found on the surface of the ground) in a wide band from east to west across Alabama and into Mississippi. In Mississippi, the outcroppings continue in a band northward to the Tennessee border.

A similar chalk formation—the Austin chalk—outcrops in a band that extends northward from Austin, Tex., to the Oklahoma border. Another chalk formation either outcrops or is found near the surface in a band that stretches from western Kansas northeastward through Nebraska and into South Dakota. None of these areas are now served by underground LPG storage.

At present, more than 170 underground storage facilities for LPG are in use. These are concentrated in the producing areas of six states—Texas, Mississippi, Louisiana, Oklahoma, New Mexico, and Kansas—and use salt beds or salt domes as storage cavities. There are also a few such storage cavities in consuming states, such as Illinois, Michigan, Ohio, New York, and Virginia.

Research by the two Oklahoma firms shows these advantages of chalk for LPG storage: Chalk won't contaminate or absorb LPG, and it is strong enough to support itself when storage cavities are tunneled into it.

Strength tests showed that, while chalk is considered a "soft" formation, it does have enough strength so that pillars left after tunneling can support the roof of a storage cavity.

In addition, chalk's low permeability will enable the operators to prevent loss of LPG because the chalk won't "soak it up."

As with other underground LPG storage, it costs less to store pressurized LPG in chalk than it does to store in surface tanks.

Propane, which must be kept under pressure, will make up the biggest portion of the stored LPG. While the companies quote no figure for the cost of the chalk cavity, they mentioned the standard comparisons between the cost of underground storage and that of surface storage: The cost of building underground storage averages out from $4 to $5.60 a bbl. while the cost of building pressurized surface tanks averages from $18 to $20 a bbl.

One reason the Alabama site was selected was that it was near transportation facilities for both receiving and distributing LPG.

The storage site is adjacent to railway and highway. LPG will be brought in from Mid-Continent and southwest producing areas by tank trucks and tank cars, and pumped into the cavity.

Storage of LPG will be made during the slack summer season so it will be available to meet peak-day demands for LPG during the winter heating season. When completed, the cavity will hold 8½-million gal.

To build the Alabama cavity, the operators are drilling vertically into the chalk formation. Later, miners will excavate the chalk horizontally to make the storage areas.

A 52-in. shaft is now being sunk 300 ft. into the chalk. It will be cased with 42-in. pipe. Miners will go down the shaft, then tunnel out the storage sections.

No regular pattern of passageways is planned. It is anticipated, however, that the passages will be about 20 ft. wide. Heights will vary, and supporting columns of chalk, about 60 ft. in diameter, will be left in a staggered pattern to hold up the roof.

Operating pressure of the facility will be 130 psi. Temperature will remain constant at about 70F.

What's New / IN TRANSPORTATION

Barge operators have set up another legal roadblock to prevent conversion of Texas Eastern Transmission Corp.'s "Little Inch" pipeline from natural gas to oil products movement. Attorneys for barge operators and for the city of Pittsburgh last week petitioned the U. S. Circuit Court of Appeals to overrule the conversion authorized by the Federal Power Commission (PW—Sep.16'55,p9).

The brief charges FPC granted authorization without making necessary findings as to future gas demands, and that it rejected evidence that conversion would increase costs of gas service. The complaint charges further that conversion would enable Texas Eastern "to monopolize the products transportation market involved."

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A $12-million contract for 75,000 tons of 30-in. pipe for West Coast Transmission Co.'s natural gas line has been awarded to a British company in Canada. By terms of the contract, South Durham Iron & Steel Co. has guaranteed to supply about 250 mi. of pipe over a period of 15 months, beginning in January, 1956. This will cover the Fort St. John-to-Vancouver section of the projected line, which will run from Northern Alberta to the U. S. border.

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Ohio Fuel Gas Co. has completed its eighth underground storage facility for natural gas. Ohio Fuel has spent more than $37-million on its underground facilities, which now hold about 148-billion cu. ft. of gas. The new area consists of a single well into a natural reservoir, that is capable of holding up to 800-million cu. ft. of gas.

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British Petroleum Co. has placed orders for 23 new supertankers, costing $145-million, with shipyards in Britain and Italy. The new tankers are to be delivered in 1958 and 1959.

NEW EQUIPMENT to service turboprop planes is one way oil men are meeting the . . .

Turbine-Fuel Challenge

United Air Lines ordered 30 Douglas DC-8s last week—the first order by a domestic airline for commercial jets. But United still doesn't know what fuel these planes will use. And this highlights the current state of the commercial turbine fuel market—uncertainty.

United won't start getting delivery until May, 1959. So it has time to ponder the fuel problem. So has Pan American World Airways, which has ordered 20 Boeing 707 jets in addition to 25 DC-8s. These will come off the assembly line between December, 1958, and January, 1961.

Eastern Air Lines, meanwhile, has alloted $125-million for jet transports (name and make not yet specified). This week American Airlines slated $100-million, for unspecified jets. And both Eastern and American have orders in for Lockheed "Electra" transports, in which turbines will drive conventional propellers as well as provide some "jet" or thrust action.

American, though, has chosen the fuel for its 35 turboprops, when they start arriving in December, 1958—kerosine. Eastern has asked that its 40 Electras be fitted to use either kerosine or JP-4 (a blend of low-octane gasolines and light distillates developed for military use).

Two other airlines have already faced the fuel question—both with the same type turboprop plane. One picked kerosine, the other JP-4. Trans-Canada Air Lines is flying 14 Vickers Viscounts in both the U. S. and Canada. It will add 11 more next year. TCA uses JP-4, the bulk of which is supplied by Imperial Oil Co., Ltd. Other suppliers are Shell Oil Co., Socony Mobil Oil Co., and Standard Oil Co. (Ohio).

Capital Airlines has three Viscounts in operation, so far, out of an order of 60. Shell supplies a slightly tailored straight-run kerosine for the craft. It calls the fuel "640"—after the fuel's viscosity (6 centistokes, max., at zero, F) and its freezing point (−40F).

This difference in choice underscores some basic debates going on in both the oil and aircraft industries about the future of turbine fuels.

Contrary to some notions, turbojets and turboprops can't fly—safely and efficiently, that is—on just about anything, including boiled shoe polish.

Thermal stability is one of the big safety factors studied by both aircraft and oil experts. And TCA and Capital have each drawn up favorable arguments for their respective fuel choices, despite the differences in boiling point, freezing point, and flash-point.

Availability is another factor. TCA says there are relatively few crude supplies in North America capable of producing good turbine-grade kerosine without some use of cracked stock and resulting "disadvantages."

Furthermore, TCA feels use of this cut for non-aircraft purposes will increase steadily in the years to come, to the disadvantage of aviation-fuel buyers. Many oil men, on the other hand, feel that a progressive increase in the world's supply will assure ample kerosine for all purposes.

The question of cost may be the most important factor in determining the nature of future turbine fuel. "We're delighted to see the airlines expanding in the direction of turbine, rather than reciprocating engines," says one major oil company's aviation sales manager. "Most of us are squeezing out every drop of aviation-grade gasolines that we can make right now. We'd be in one devil of a spot if aviation's growth continued through gasoline engines.

"But even with turbines, it'll be up to the aircraft makers to keep fuel costs down. If they keep trying to fly higher, faster, and farther, and turbines become highly specialized in their fuel requirements, costs are bound to go up."

Transportation costs, in addition to manufacturing costs, pose one of the big challenges to commercial turbine-fuel marketers. Oil companies have been supplying the military with jet fuels for years. But most of this is picked up—right at the refineries or nearby terminals—by the armed services themselves.

The theory that JP-4 has "widespread availability," therefore, is questioned by those who favor kerosine. JP-4, they say, isn't really a part of the normal marketing setup of most oil companies—except for relatively tiny amounts delivered to makers of aircraft engines for research and experimental purposes.

"JP-4," says another marketer, "is a distinct product, just like an aviation-grade gasoline, and must be handled in separate transportation facilities. In most oil companies, these facilities are operating at capacity today. So putting JP-4 into commercial supply means adding facilities all along the line."

Oil companies that supply JP-4 now to Trans-Canada Air Lines have underlined the necessity of adding new facilities in order to introduce JP-4 into the commercial-user market. Imperial not only added extra tankage at certain refineries, and along its pipeline, highway, and water routes, but also financed installation of new on-field facilities for TCA—storage tanks, filtering and pumping equipment, and special trucks to carry the fuel to the planes.

The U. S. oil companies supplying TCA's Viscount fuel at airports in this country report similar expenditures.

Shell Oil Co.'s solution to Capital Airlines' fuel problem demonstrates that turbine-grade kerosine can be slipped fairly easily into an oil company's existing marketing set-up, at least for a while. Shell simply "narrowed" its basic cut of "burning" kerosine at a few refineries, and channeled the "trimmed off" edges of the fraction back into its other straight-run distillates.

The resulting product, therefore,

goes through Shell's established kerosine facilities, necessitating only a small step-up in pace to handle the slightly increased volume.

This has led to the somewhat incongruous picture of turboprop planes, space heaters, brooders, lamps, and some tractors all operating on the same fuel. But farmers probably relish the idea of using such "new-fangled" stuff, if they're aware of it, while Capital certainly doesn't mind the idea of using such a "common" product.

Shell designed and bought 19 new trucks for on-field servicing of its Capital account (picture). These are fitted so that one-tenth of their capacity is used to transport water-methanol along with each "640" load. (Water injection is used to boost the turbine's take-off power; methanol is added to keep the water from freezing). But Capital leases the trucks from Shell. And Capital also is installing the necessary field storage tanks to handle the "640" as it arrives from Shell terminals or bulk plants.

Naturally, widespread acceptance of kerosine by the airlines—even a straight-run type such as Shell's—would eventually boost volume to the point where oil companies would be spending as much for new facilities for this "old" product as they would to accommodate a "new" product. But while the turbine field is still growing, kerosine may make the transition from reciprocating-engine flight to turbine flight fairly smooth.

The market for aviation gasolines, meanwhile, is expected to remain relatively steady for at least a decade. Authorites like Brig. Gen. W. W. White, director of the Defense Dept.'s Petroleum Logistics Division, predict increased civil demand for avgas will offset drops in military requirements (PW—Oct.28'55,p31).

And the airlines are by no means abandoning the reciprocating engine. Trans World Airlines, for example, has recently ordered 24 new Lockheed 1649 Super Constellations, to be delivered beginning in early 1957. These will be powered by grade 115/145 avgas. Several airlines that are buying jets are also expanding their reciprocating-engine fleets.

Airlines, furthermore, account for only a small percentage of operating aircraft. Civil Aeronautics Administration statistics show the airlines owned only 1,620 planes, as of last Sept. 30. But individually owned planes, and those owned by companies and operated noncommercially, totaled almost 57,000 at the beginning of this year.

Nobody is predicting a substantial switch to turbines in this latter market—not any time soon, anyhow.

What's New / IN MARKETING

The Texas Co. is going to try putting gasoline and oil in Santa's bag this season. Texaco outlets will have $5 and $10 gift certificates for sale, for use as Christmas presents. Recipients may exchange them at any Texaco outlet in the U.S., for gasoline, oil, or lubes, or toward the purchase of tires, batteries, and accessories. Texaco believes it is the first major oil company to adopt the idea—used successfully in many other businesses.

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Pennsylvania jobbers protested oil company "abuses" last week and drew prompt assurance that at least one major is on their side. The Pennsylvania Petroleum Assn., meeting at Mount Pocono, urged supplying companies to "re-examine" their marketing practices—to curb "overbuilding," continued price wars, and commercial account raiding—"so that jobbers may not be compelled to seek corrective action outside the industry."

Kerryn King, public relations director for The Texas Co., answered that his company is "seeking every possible way to correct these abuses through constructive, orderly actions on our own initiative." Failure of other companies to take similar steps, he added, would invite "regulation of a nature none of us wants."

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A Spokane (Wash.) independent retailer has been restrained by a court order from selling Du Pont antifreeze products below fair trade prices. The complaint by Du Pont charged Economy Stations, Inc., with selling Zerex at 76¢ a gal. less than the fair trade minimum, and Zerone at 11¢ per gal. under the minimum. Du Pont also is seeking $10,000 damages.

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The Armed Services Petroleum Purchasing Agency says from now on bidders for agency contracts must have products tested and qualified to meet military specifications before the date specific bids are opened. Previous policy enabled qualification of a product any time before award date.

ASPPA also served notice it is disappointed with recent offers of Navy Special fuel oil on the West Coast, and with offers of Grade 115/145 aviation gasoline. Col. A. C. Gilliam, ASPPA director, later attributed the shortage of Navy Special and other residuals to voluntary restriction of imports by "most oil companies" and to higher market demand for lighter products, resulting in less residual yields.

As for avgas, Capt. Carl Drescher, deputy director, said ASPPA "can't break the basic price structure just to secure coverage" and will keep going back to suppliers for better offers before falling back on "marginal coverage."

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Some 16 service station operators were slated to testify yesterday before a special Federal Grand Jury investigating possible price-fixing in Massachusetts. This makes a total of 58 retailers called by the panel since it started its hearings in early October, in Boston. Other inquiries on the panel's schedule involve marketing of rolled gold, concrete pipe, and pipe machinery (PW—Aug.12'55,p29). These originally were to have preceded the gasoline-price probe.

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The penalty for gasoline price-fixing in British Columbia is being tested at $1 per offender by a Vancouver judge. Justice A. M. Manson, following a jury recommendation for utmost leniency, levied the token fine on 26 service station operators and the Retail Merchants Assn. of Canada. He said the Crown is more interested in establishing conviction of the defendants as a "warning" to others than it is in punishing those found guilty in the current test case. The association and the retailers were found guilty of conspiring to fix and enhance the retail price of gasoline throughout the Greater Vancouver area between 1951 and 1953.

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Minimum octane rating for gasoline sold under the Ethyl trade mark will be 94 after the first of the year, not 95 as reported last week (PW—Oct.28'55,p25). The usual three-point differential for high-altitude regions applies, making the minimum there 91-octane.

The Market Place AROUND THE WORLD

Current key crude and refined oil prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service, a McGraw-Hill Publication.

All Prices as of October 31

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal., except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 97 oct prem. 13-13.5
- Gasoline, 90 oct reg. 11-11.5
- Kerosine 8.75-9.75
- Heating oil, No. 2 8.5-9.25
- Gas oil, 48-52 d.i. 8.625-9.125
- Fuel oil, bunker "C" $2.10-2.15

Caribbean, cargoes
- Avgas, Grade 100/130 16.75
- Gasoline, 93 oct research prem. 11.5
- Gasoline, 87 oct research reg. 10.5
- Gasoline, 79 oct research 9.75
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 8.75
- Heating oil, No. 2 8.5
- Gas oil, 48-52 d.i. 8.625
- Fuel oil, bunker "C" $2.10

New York Harbor, barges
- Gasoline, 89 oct reg. 12.25
- Kerosine 10.05-10.55
- Heating oil, No. 2 9.55-10.05
- Fuel oil, No. 6 $2.65

Okla.-Group 3, northern shpt, bulk
- Gasoline, 86 oct reg. 11-11.5
- Kerosine 9.25-9.5
- Heating oil, No. 2 8.25-8.75
- Fuel oil, No. 6 $1.75-1.90

Chicago, bulk
- Gasoline, 86 oct reg. 12
- **Heating oil, No. 2 9.5-10.1**
- Fuel oil, No. 6, high sulfur 7.15-7.35

Los Angeles, rack
- Gasoline, 84 oct reg. 13.1-13.15
- Stove dist., PS 100 9.25-10
- Diesel fuel, PS 200 9-9.3
- Light fuel, PS 300 $2.30
- Heavy fuel, PS 400 $1.90-2.00

Natural Gasoline, Grade 26-70
- **FOB Group 3 5.5-6**
- **FOB Breckenridge, Tex. 5-5.5**

Penna. Lubes
- **Bright stock, 25 p.t. 19.5-20**
- **200 vis. neutral, 25 p.t. 19-20**

Mid-Continent Lubes, Tulsa basis
- **Bright stock, solvent, 95 v.i. 22-23**
- **Neutral, solvent, 200-210 vis. 17.75-18.75**

Gulf Coast Lubes
- **Bright stock, solvent, 95 v.i. 23**
- **Neutral, solvent, 200 vis. 19.5**

Eastern Hemisphere

Singapore, cargoes
- Avgas, Grade 100/130 18.375
- Gasoline, 79 oct research 10.25
- Gasoline, 70-72 oct motor method 10
- Kerosine 9.375
- Gas oil, 48 d.i. minimum 9.125
- Fuel oil, light $3.10

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 grav. $2.82
- North Dakota, 36.0-36.9 grav. 2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 grav. 2.95
  - Gulf Coast, upper & lower, 26.0-26.9 grav. 2.82
  - West Texas sweet, 36.0-36.9 2.82
  - West Texas-New Mexico intermediate, 36.0-36.9 2.75
  - West Texas-New Mexico sour, 32.0-32.9 2.61
  - East Texas, flat price 2.90
  - Mirando, 28.0-28.9 grav. 2.96
- Illinois Basin, flat price 3.00
- Penna. Grade, Bradford dist., flat price 3.60
- California, Signal Hill, 21.0-21.9 grav. 2.39†
- North Louisiana-Arkansas, 36.0-36.9 grav. 2.82
- Wyoming sweet, 36.0-36.9 2.82
- Wyoming sour, 32.0-32.9 2.48

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C. 2.54
- Leduc-Woodbend (Alta.) D-2, D-3 2.60
- Redwater (Alta.) D-3 2.49
- Daily-Mississippian (Man.) 2.34
- Smiley-Viking (Sask.) 2.24

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.04
- Oficina, 35.0-35.9, Puerto la Cruz 2.88
- Tia Juana Medium, 26.5-26.9, Amuay 2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras 1.90**
- West Tarra, 37.0-37.9, Cardon 2.99
- Lagunillas Heavy, flat prices: Cardon 1.90
  Amuay, Las Piedras 2.05

Differential per ½ deg. grav.: (*) 2.5¢ bbl. (**) 3.5¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 36.0-36.9, Ras Tanura 1.97
- Basrah, 36.0-36.9, Fao 1.92
- Iranian, 34.0-34.9, Bandar Mashur 1.91
- Iranian, 34.0-34.9, Abadan 1.86
- Iraq, 36.0-36.9, Fao 1.92
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.72
- Qatar, 39.0-39.9, Umm Said 2.06

Middle East, E. Mediterranean
- Arabian, 36.0-36.9, Sidon 2.39
- Iraq, 36.0-36.9, Tripoli, Banias 2.39

Far East (Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38 grav. 2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)

- U. S. Gulf-New York, clean...(USMC −10%) $2.57
- **U. S. Gulf-New York, dirty. (USMC −15%) $2.42**
- **NWI-USNH, dirty (USMC −20%) $2.16**
- **NWI-UK/Continent, dirty. . (MOT +10%) 35/9***
- **Pers. Gulf-UK/Cont., dirty (Scale +2½%) 55/3***
- Persian Gulf-USNH, dirty.....(USMC −30%) $8.89

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Advanced Exploration Co., Inc.
Agip Mineraria
Amerada Petroleum Corporation
Apache Exploration Co., Inc.
Ayrshire Exploration Company
Bank of Mexico
Beaver Geophysical Services, Ltd.
Bennett & Hurst Geophysical Co., Ltd.
Berg Exploration Co., Inc.
Berg Geophysical Company
Brazos Exploration Service
British Petroleum Co., Ltd.
Broussard Exploration Co., Inc.
Canadian Exploration Co., Ltd.
Canadian Gulf Oil Company
Chevron Oil Company
Chinese Petroleum Corporation
Compagnie General de Geophysique
Compagnia Italiana di Prostezioni
Cosden Petroleum Corporation
C. Deilmann Montan G.m.b.H.
Delta Exploration Company
Donnally Exploration Company
Donnally Geophysical Company
Donnally Seismograph Company
Electronic Logging & Velocity Co., Ltd.
Empire Geophysical, Inc.
Empire Velocity Service Company
Evangeline Seismic Company
Farney Exploration Co., Ltd.
Fenwick-Walczak Company
Frontier Geophysical, Ltd.
Ganagan Construction Corporation
Geochemical Surveys
Geocraft, Ltd.
Geophysical Associates
Geophysical Prospecting Co., Ltd.
The Geotechnical Corp. & Affiliates
Globe Exploration Company, Inc.
Gulf Coast Seismic Surveys
Gulf Oil Corporation
Gulf Research & Development Co.
Heiland Exploration Canada Ltd.
Hooks Exploration Company
Humble Oil & Refining Company
Imperial Oil Limited
Independent Exploration Co.
Independents' Geophysical Surveys Corporation
Japanese Government
Kerr-McGee Oil Industries, Inc.
Liberty Exploration Company
Louisiana Oil Exploration Co.
Magnolia Petroleum Company
Mayes-Bevan Company
McCollum Exploration Company
Mid-Continent Geophysical Co.
Montex Exploration Company
Nance Exploration Company
New Mexico Institute of Mining & Technology
Newton & Crittenden
Northwest Seismic Surveys, Ltd.
Offshore Exploration Group, Inc.
Pan American Geophysical Company
Petroleos Mexicanos
Petroleum Geophysical Company
Plymouth Oil Company
Portable Seismograph, Inc.
PRAKLA Gesellschaft fur Praktische
Precision Exploration Company
Purcell Exploration Service
M. L. Randall
Robert H. Ray Company
Rayflex Exploration Company
Reliable Geophysical Co.
Research Explorations, Inc.
V. T. Reynolds, Inc.
Rogers Geophysical Company
Seismic Ventures, Ltd.
Seismograph Service Corporation
Seismotech Limited
Sinclair Oil & Gas Company
Sinclair Research Labs, Inc.
Sohio Petroleum Company
Southern Geophysical Company
Southwestern Consultants
States Exploration Company
The Texas Company
Texas Seismograph Company
Tidelands Geophysical Co., Inc.
Tulsa Exploration Company
Unger Exploration Company
Universal Seismic Survey, Ltd.
U. S. Air Force Cambridge Research Center
Velocity Surveys, Ltd.
Western Geophysical Company
Whitsitt Geophysical Company
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Zavod Za Geofizicka Ispitivanja

During the past ten years, leading exploration groups all over the world have chosen SIE Seismograph Systems to meet their exacting standards for petroleum exploration instrumentation. We are grateful for their patronage and believe this wide acceptance is founded on our efforts to maintain the highest standards of performance and reliability in every product we manufacture. May we suggest you contact the geophysicists associated with these firms for their candid opinions about their SIE equipment?

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In Australia: Swift & Company, Pty., Ltd., Sydney • **In Japan:** F. Kanematsu & Company Ltd., Tokyo

The Market Trend

'Top' Prices: Once Burnt, Twice Shy

Once burnt, twice shy. Those are the sentiments of companies that furnish ships' bunkering services to the international marine trade. For this year they have been stuck royally on "top" price clauses in their heavy fuel supply contracts. They haven't been stung so badly since the runaway market of 1947.

November is dotted-line month for 1956 contracts with ship owners, and suppliers swear up and down that they aren't going to get caught again with their ceilings down. Putting your head in a noose once is once too often, suppliers say.

A year ago when contracts were up for renewal, it was a different story. There was plenty of bunker "C" fuel then, or so it seemed. In order to get 1955 contracts signed up fast last November, suppliers offered a dollar-studded deal to their shipping customers. They stipulated: (1) that bunkering prices on the West Coast would get no contract increases during 1955; (2) that 1955 contract buyers would pay no more than 10¢ above last November's prices at Gulf Coast, East Coast, and Caribbean ports; and (3) that contract "C" fuel buyers in Europe this year would pay no more than five shillings ($0.70) a ton more than they paid last fall. All this regardless of what happened to spot marine fuel prices.

Sellers Got Caught Here:

And then the roof blew off. Since last November, West Coast spot "C" fuel prices have gone up 15¢ a bbl. Gulf Coast and Caribbean prices are up 25¢. East Coast prices vaulted 40¢. Prices in Europe rose by 12 shillings, six pence ($1.75) a ton. All this means that supppliers now are selling contract accounts 15¢ a bbl. lower than spot on every "C" fuel bunkering in West Coast, Gulf Coast, and Caribbean markets. They're "giving away" 30¢ at New York harbor and most ports on the Atlantic seaboard. And in Europe, contract "C" fuel maximum prices range about seven shillings and six pence ($1.05) a ton below current spot bunkering prices.

1956?

At least one U. S. company has put the word out that it intends to forget about maximum prices until the world bunker supply gets a lot easier than it is now. If no international supplier offers "top" clauses for 1956, there will be automatic price increases to contract accounts (up to spot prices) on Jan. 1 next. But if any company as much as hints at ceiling prices in 1956 contracts, all other suppliers will have to jump aboard. Either that, or they'll have trouble signing up accounts.

Watch Europe:

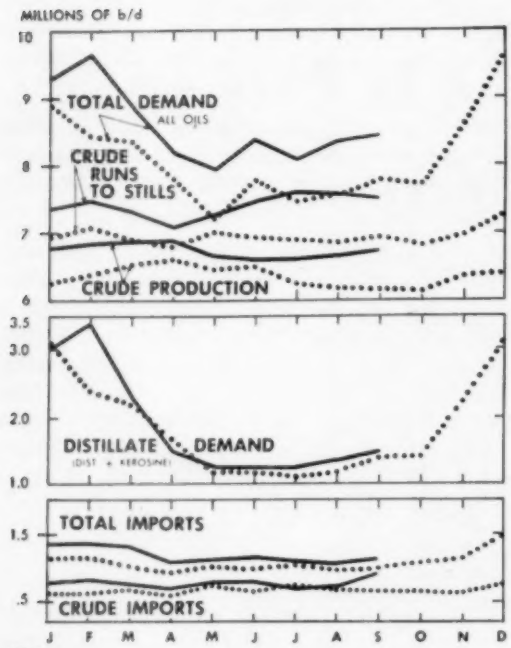
Best bet now is that British or Dutch-controlled companies are likeliest candidates to start a move to "top" prices for 1956—if anyone does. Foreign companies almost always are on the lookout for new bunkering business. To sterling operators, bunkering is one of the three main roads to profitable operations—bunkers, crude, and ocean transportation.

Force Majeure:

Even if "top" prices do become general for 1956, suppliers will continue to have an out. It's "force majeure." Like most contracts covering bulk supply over extended periods of time, marine oil supply pacts have a clause which says that catastrophes, wars, acts of God, and the like, will render the ceilings inoperative.

PETROLEUM WEEK'S

Fingertip Figures



TOTAL DEMAND

Latest 4-week average	8.354
Year ago	7.773

RUNS TO STILLS

Latest week	7.476
Previous week	7.477
Year ago	6.897

CRUDE PRODUCTION

Latest week	6.750
Previous week	6.753
Year ago	6.153

DISTILLATE DEMAND

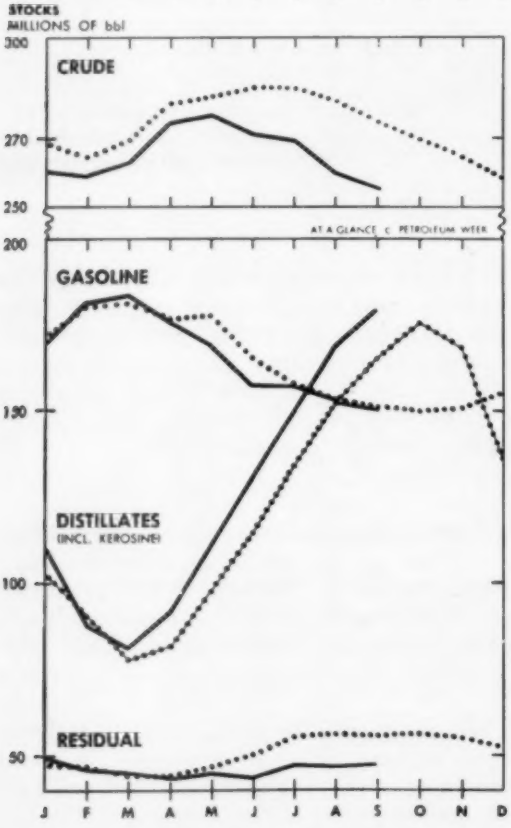
Latest 4-week average	1.596
Year ago	1.529

TOTAL IMPORTS

Latest week	1.114
Previous week	1.190
Year ago	.971

CRUDE IMPORTS

Latest week	.761
Previous week	.932
Year ago	.530



CRUDE STOCKS

Week ended 10-22	257.0
Previous week	255.1
Year ago	273.3

GASOLINE

Latest week	151.6
Previous week	151.5
Year ago	149.3

DISTILLATES

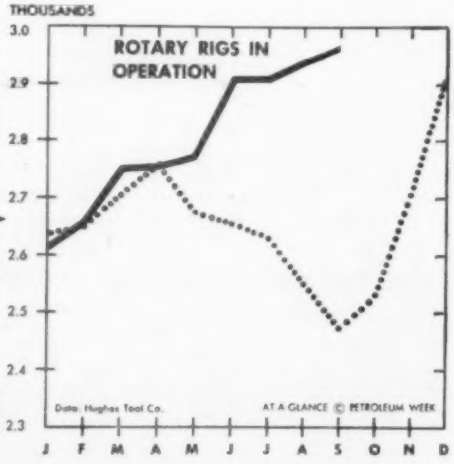
Latest week	188.0
Previous week	186.7
Year ago	175.3

ROTARY RIGS

Latest week	2.956
Previous week	2.998
Year ago	2.531

RESIDUAL

Latest week	46.3
Previous week	46.6
Year ago	56.4



DEMAND FOR DOMESTIC crude oil in November is estimated at 6,770,000 b/d by the Bureau of Mines, a gain of 4.9% (319,000 b/d) over actual demand last November. The forecast for November is only 20,000 b/d higher than the bureau's estimate of October demand. Preliminary figures indicate that the Bureau's forecast for October, of 6,750,000 b/d, will prove to be just about right.

Imports of crude and refined products in November are estimated at 1,220,000 b/d, up only slightly from the indicated average during October. The estimates for November, plus anticipated production of natural gas liquids, would indicate a total new supply for the month of about 8.8-million b/d.

Crude oil runs to refineries in November are estimated by the bureau at 7,440,000 b/d, a gain of 6.6% over actual runs last November. This predicted level of refinery throughput in November is about in line with other estimates of required runs for the month. The estimate for November is slightly higher than indicated runs during October.

* * *

GASOLINE OUTPUT last week set a new all-time record of more than 27-million bbl. The week's average of 3,868,000 b/d was 1½% higher than the previous record, set last August.

He's Not Retiring Yet

John R. Suman is relying on a background of 44 active years as engineer, geologist, and executive to help make his "retirement" as production vice-president at Standard Oil Co. (N. J.) a springboard to new opportunities.

Suman, who was born in Daleville, Ind., on Apr. 9, 1890, had been a vice-president and director of Jersey Standard since February, 1945. He retired from these posts last Mar. 31. Instead of retiring to a life of ease and fun, however, the energetic Suman has opened a consultant's office in Houston, which has been his home town since 1945.

Suman, one of the nation's most widely known oil men, already has been retained by three companies in his new role as consultant on oil industry matters.

Since leaving Jersey, Suman has been retained by the Chemical Corn Exchange Bank of New York, Blyth & Co., also of New York, and Schlumberger Well Surveying Corp., in which he also was named a director. His duties will require him to make frequent trips to New York City. At other times he will maintain working hours in his offices at the Texas National Bank building, in Houston, with as many hours set aside for hunting and fishing as he can manage.

Suman explains his new venture by stating, "I've got to keep on doing something."

If Suman ever decides to make retirement a fact, he'll be able to look back on an impressive list of achievements. These include contributions to development of the rotary drilling rig and to better recovery methods.

In the realm of better equipment, Suman also shared in pioneering the unitized drilling rig, which could be taken down in a few large sections, rather than piece by piece, as was the case with earlier rigs. In the field of reservoir engineering, Suman assisted in pressure-restoration experiments that helped increase recovery of oil in a producing formation.

Suman had a dramatic opportunity to exercise his knowledge of geology and physical forces in an incident that occurred in 1933. In the midst of development of the Conroe oil field in Texas, a well belonging to a competing company got out of control. Some 9,000 bbl. of oil a day were flowing from the wild well; if the flow continued unrestricted, there was danger the new field would be seriously damaged. Most of the operators said there was nothing to be done.

JOHN R. SUMAN, former production vice-president of Jersey Standard, says he's "got to keep on doing something." So he's opened a consultant's office.

But Suman contended he could drill a deviated hole from a point on the edge of the great crater to the bottom of the wild well and kill the flow with large volumes of water. This had never been done before. But Humble Oil & Refining Co., his employer at the time, and several other companies put up $1-million for Suman to make the try. He succeeded, and a great oil reserve was saved.

Suman is the author of many technical papers, and his book, "Petroleum Production Methods," has long been a standard reference work. In 1941 Suman received the honorary degree of Doctor of Engineering from the South Dakota School of Mines in recognition of his contributions to the oil industry. And in 1943, the American Institute of Mining & Metallurgical Engineers awarded him the Anthony F. Lucas medal for "distinguished achievement in improving the technique and practice of producing petroleum."

After graduating from college as a mining engineer, Suman began his oil career as a geologist with Rio Bravo Oil Co., of Houston. As he grew, with various companies, he became increasingly active in petroleum industry affairs.

Suman received his higher education at the University of Southern California and the University of California, from which he was graduated in 1912 with a B. S. degree. After graduation he joined Rio Bravo, at $100 a month, and rose to chief engineer. He went to Roxanna Petroleum Corp. in 1917 and served as its technical superintendent in Texas and Louisiana for two years. Then he returned to Rio Bravo as assistant to the vice-president and general manager. By 1925 Suman was vice-president and general manager.

Suman joined Humble in 1927 as a director with the duty of creating a petroleum engineering department in the Jersey Standard affiliate. He was made a vice-president in charge of production in 1933, a post he held until 1945, when he was elected a vice-president and director of Jersey Standard. He became a regular member of Jersey's Executive Committee the following year. At Jersey Standard, Suman was responsible for the company's worldwide producing activities.

Through the years Suman also became an active participant in petroleum industry affairs. He still is a member of the American Assn. of Petroleum Geologists, the American Institute of Mining & Metallurgical Engineers, of which he was president in 1941, and the Houston Geological Society, and a director of the Texas Mid-Continent Oil & Gas Assn. He is an honorary director of the American Petroleum Institute for life, and former director of the U. S. Chamber of Commerce and the National Assn. of Manufacturers.

The friendly, Hoosier-born Texan, however, believes his greatest contribution to the oil industry has been to the character and job training of younger workers.

As Suman sees it, helping to develop "a wonderful group of younger men" outranks anything else he has done. "At Humble," he recalls, "we put our young engineers at common labor in the field for a year or so, depending on conditions. This not only gave them actual experience in the jobs over which they would later have some responsibility in our offices, but put them in contact with a group of men who were wonderful 'character trainers' for young college men. Some of our drillers couldn't sign their names to their pay checks, but they could teach a young man how to get along with men in the oil field."

CLASSIFIED

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T. L. LENZEN and **G. L. PARKHURST** have been elected to the board of directors of Standard Oil Co., of California. The two vice-presidents are succeeding **F. S. Bryant**, retired, and the late **A. N. Kemp.** Lenzen has been closely affiliated with Middle East oil developments as manager of California Standard's Eastern Hemisphere operations. He is director of the affiliated Bahrain-Caltex group of companies. Parkhurst, a vice-president since 1949, previously was president of Oronite Chemical Co., a chemical marketing subsidiary. He is a director of Arabian-American Oil Co. and Trans-Arabian Pipe Line Co.

LLOYD R. FRENCH has formed a new rotary drilling firm, Lloyd R. French Co., in Midland. French first came to the Permian Basin in 1931 with Humble Pipe Line Co. In recent years he has been an officer and part owner of Tri-Service Drilling Co. **Roy L. Franklin** is drilling superintendent of the new firm. He previously had been associated with T & C Drilling Co., in addition to serving with Loffland Bros.

CHARLES E. MAIN has been named chief engineer of the eastern pipelines division of Socony Mobil Oil Co. He will succeed **George F. Brigance**, who is retiring. Main has been superintendent of the product pipeline department, central pipeline division, in Topeka, Kan. He has been associated with the central pipelines division for the past 20 years except for a short stay in Australia in 1954.

W. L. PEYTON will assist the manager of Continental Oil Co.'s geological section in Houston. **E. F. Culp**, staff geologist, will succeed Peyton as Oklahoma City division geologist.

JOHN F. VAN HORN has been appointed senior engineer of the engineering division of Sohio Pipe Line Co., in St. Louis Mo. He joined the general engineering division of Sohio's manufacturing department in Cleveland in 1954.

NASH J. DOWDLE has been named president of a newly formed drilling and exploration company, Texas American Oil Corp., Midland. He is also president of St. Ann's Petroleum Corp. Other officers are: **C. L. Milburn**, executive vice-president; **J. H. Bartley**, vice-president; and **D. C. Baldwin**, secretary-treasurer. Milburn is owner of Navarro Royalty Co. Bartley is a consulting geologist. Baldwin is a partner in the CPA firm of Baldwin & Innerarity, Midland.

CLARENCE G. MERCATORIS, Mercatoris Oil Co., Meadville, Pa., has been elected president of the Pennsylvania Petroleum Assn. He succeeds **Martin Heine**, of the Heine Petroleum Co., Huntingdon, Pa. **James E. Stevens** was reelected executive secretary.

DR. LELAND G. COLE, physical chemist, has been added to the research staff of Consolidated Engineering Corp., Pasadena. He was formerly director of the dynamics laboratory of Robertshaw-Fulton Controls Co., Anaheim, Calif.

HARLEY M. ROSS will manage gas operations of Carbide & Carbon Chemicals Co., New York, a division of Union Carbide & Carbon Corp. He has been assistant works manager since 1952.

DALLAS R. LAMONT (left) will be in charge of Socony Mobil Oil Co.'s research and development program, and of its laboratories. He succeeds **WILLIAM M. HOLADAY** (right), who has been appointed coordinator of new product planning. Lamont, Socony patent counsel since 1931, has also been elected to the company's board of directors. He invented bead soap, the forerunner of many soap products. Holaday, who has headed Socony's research and development activities since 1944, will serve as chairman of an interdepartmental committee on product quality.

JOHN B. MAERKER has been appointed director of development at the Research & Development Laboratories of Houdry Process Corp., at Linwood, Pa. He succeeds **Josef W. Schall,** now assistant manager of marketing in the chemicals division. A licensed professional engineer and member of the American Institute of Chemical Engineers, Maerker joined Houdry in 1943 as developing engineer. **Frederick R. Walser,** will replace Maerker as chief of the commercial development section.

FREDERICK S. RICH has been named petroleum coordinator for Fischer & Porter Co., Hatboro, Pa. Formerly senior instrument engineer for Arabian-American Oil Co., he has had 22 years experience in instrumentation.

S. H. LETTEER will superintend Gulf Oil Corp.'s new zone production office in Denver. He will oversee production operations in the Rocky Mountain region, under jurisdiction of the Tulsa production division.

S. C. BURNET has been appointed sales manager of Shell Oil Company, of Canada, Ltd. He had been manager of the Toronto division since 1949. He started with Shell as a service station attendant in 1934.

F. W. (BUZ) BURTON, Decatur, Tex., is the new president of Petroleum Marketers Assn., of Texas. He succeeds **H. L. Allen,** of Houston. **J. F. Walker,** Marshall, Tex., and **George Hammock,** of Amarillo, were elected vice-presidents. **T. C. Lacy,** of Nacogdoches, and **Clyde Austin,** Kennedy, Tex., were reelected vice-presidents. **C. A. Forbes,** Georgetown, was named treasurer.

DR. DONALD R. LONGMAN, manager of marketing operations for Atlantic Refining Co., Philadelphia, will be chairman of a panel on Industrial Marketing Potentials at the national conference of the American Marketing Assn., to be held in New York Dec. 27, 28, and 29.

HENRY E. McAULIFFE has been named vice-president and general manager of Mobil Oil Co. de Colombia. He succeeds **A. D. Graves,** who is returning to New York to assist the producing committee member in charge of eastern hemisphere operations. McAuliffe has been in charge of special studies in the producing department since 1950.

SIX ENGINEERS were honored by the National Assn. of Corrosion Engineers with certificates of appreciation at its four-day regional meeting in Houston. **Albert N. Horn,** vice-president, Texaco-Cities Service Pipeline Co., Tulsa, and **Tom R. Statham,** Magnolia Pipeline Co., Dallas, were cited for their outstanding organizational work within the associaton. Statham is the first Texan to receive an NACE citation. Other engineers cited are: **Harrell L. Bilhartz,** Production Research Corp., Dallas; **Max C. Fleming,** Phillips Pipeline Co., Bartlesville, Okla.; **Nathan Schofer,** consulting engineer, Litwin Engineering Co., Wichita; and **Harry E. Waldrip,** Gulf Oil chemical engineer, Houston.

LT. COL. JOHN F. McCRADY, USAF, has been promoted to the newly created post of assistant director of the Armed Services Petroleum Purchasing Agency. McCrady, former chief of the programs division, will head the new office of management. McCrady had considerable field experience in the oil industry before World War II, in drilling, pumping, and pipeline operations. After the war, he acquired a marketing background with Richfield Oil Corp.

BYRON A. WEST has been named assistant manager of the personnel department, western operating division, Standard Oil Co. of California. For several years, he had been supervisor of personnel and organization for California Standard's subsidiary firm, Salt Lake Refining Co., at Salt Lake City.

A. L. THOMAS has joined the Midland office of Southern Geophysical Co., Fort Worth, as party chief. His 15 years experience in geophysical prospecting includes service as party chief with Stanolind Oil & Gas Co.

ADVERTISERS IN THIS ISSUE

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PETROLEUM WEEK REPRESENTATIVES

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Walnut 5778

Boston 16
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350 Park Square Bldg.
Hubbard 2-7160

Chicago 11
G. L. Hackley, Jr.
W. F. Holbrook
520 North Michigan Avenue
Mohawk 4-5800

Cleveland 15
J. E. MacArthur
1510 Hanna Bldg.
Superior 1-7000

Houston 25
David G. Sawyer
724 Prudential Bldg.
Jackson 6-1281

Los Angeles 17
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Longacre 4-3000

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Rittenhouse 6-0670

San Francisco 4
T. Evans Wyckoff
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What Does Crude Cost?

THERE'S SOLID FOOD for thought in the study of crude costs made by a committee of the Independent Petroleum Assn. of America (page 9). It's important not only to producers but to every segment of the industry.

The main pitch of the committee is that crude prices should reflect replacement costs. Otherwise, where does the money come from to pay the ever-increasing costs of finding and developing the oil to replace that being used today?

The producers, like everyone else, are facing rising costs of operation. But the producer's problem is further magnified by the fact that many wells have to be drilled deeper than ever before, and that wells in general aren't as productive as they once were. Each new foot of drilling in 1955 costs about twice what it did in 1940—and produces about half as much oil!

THIS DOESN'T MEAN that producers are going broke all over the place. That's not the point. What is important, however, is to bear in mind that a profit made off the sale of a barrel of oil yesterday or today isn't a profit after all if it is swallowed up in the cost of producing a barrel to replace the original one.

The committee argues that if we lose sight of the increasing cost of tomorrow's oil, we might wind up without oil tomorrow. Many companies are finding that their exploration and production expenditures are rising at a much faster rate than their revenue. This cuts into the amount of money available to put to work hunting for new oil reserves. In the long run, this could result in less oil.

The present oil depletion allowance is under study both by the Treasury Dept. and by a congressional committee. The subject is apt to get involved in some hot debate next year.

WE'D SUGGEST that all concerned give some careful study to the committee's cost study report. Naturally the committee presented its case in the best light possible. But there's plenty of common sense in it. And a lot of that is needed to solve the problem of tomorrow's oil.

Get greater profits
starting with your next fracture job

Adomite*

Adomite is a revolutionary fluid-loss control additive for converting lease crudes to superior fracturing fluids. It has already been used successfully in over 1,000 fracture jobs in different fields.

Ask your service company to use Adomite on your next fracture job

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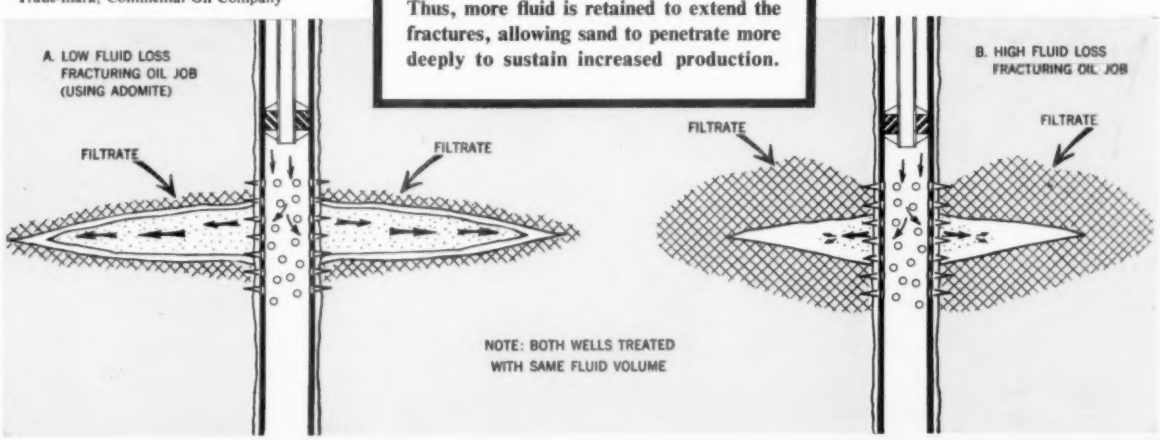
HOW ADOMITE BENEFITS PRODUCERS

- Effectively seals the fracture face and practically prevents loss of fluid into the producing formation.
- Results in longer fractures and deeper penetration of sand for a given job.
- Cleans up rapidly. Does not contaminate the produced oil or the formation.
- Greater sustained production with a given fluid volume at lower cost.
- Equally effective in oils which have or have not been treated with emulsion breakers.
- Easy to use. Adomite is a dry material in flake form. It is mixed directly into the crude or gelled crudes on the lease, using only standard mixing equipment.

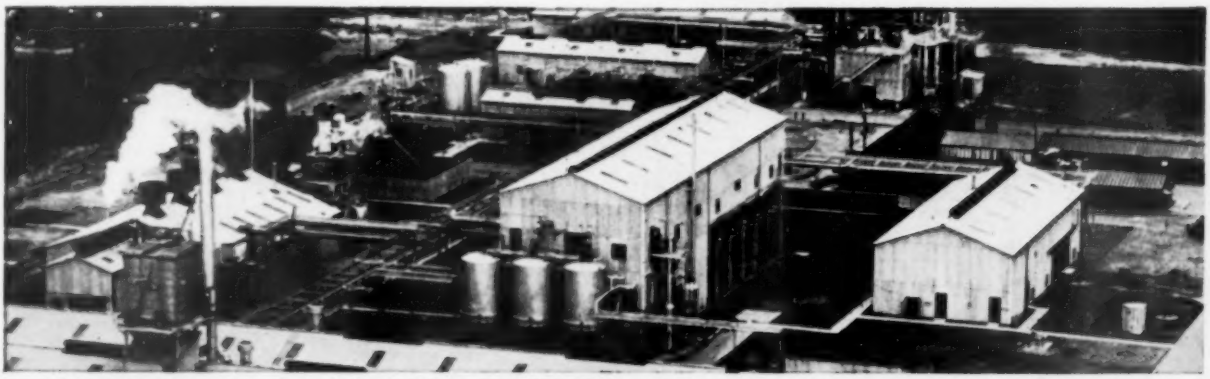
HOW IT WORKS

Adomite retards fluid loss into the formation. Thus, more fluid is retained to extend the fractures, allowing sand to penetrate more deeply to sustain increased production.

*Trade-mark, Continental Oil Company


A. LOW FLUID LOSS FRACTURING OIL JOB (USING ADOMITE)
FILTRATE
FILTRATE
B. HIGH FLUID LOSS FRACTURING OIL JOB
FILTRATE
FILTRATE
NOTE: BOTH WELLS TREATED WITH SAME FLUID VOLUME

4th and 5th PVC Projects Will Use SD's Suspension Process



Recently completed mono and polyvinyl chloride plant designed by SD.

"Less than a year will be required from initial design to commercial operation of the new Thompson Chemical Company PVC plant," according to Thomas P. Brown, Vice-President of SD. "Process design and detailed engineering of the new plant will be finished in a relatively short time because of SD's previous design experience with both small and large PVC plants."

From Henry F. Peters, SD's Assistant Vice-President of Engineering, "As a subsidiary of The Pantasote Company, the Eleonora Chemical Corporation's new PVC plant will produce resin for the parent company's line of plastic film and sheeting. In addition to process design and detailed engineering, SD, as prime contractor, will have full responsibility for construction of the plant as well as initial operation."

New PVC Plants Will Produce Resins of High Purity and Versatility

Since 1951, when only about half the PVC used was produced by the suspension process, this process has been steadily gaining ground. The reason? PVC produced by suspension process costs less to manufacture, has fewer impurities, and greater versatility in application.

SD's suspension process was first proved in collaboration with one of the largest European chemical firms. Subsequently SD designed the General Tire & Rubber Company's $6,000,000 integrated mono and polyvinyl chloride plant in Ashtabula, Ohio.

In design and engineering of these plants, SD's technical staff conceived and designed a flexible, standardized plant. These plants, with production capacities of four to fifteen million pounds, allow manufacturers of plastic products to produce their own PVC for their special requirements. One of these plants is now underway for another leading American manufacturer.

The Thompson Chemical Company and Eleonora Chemical Corporation represent SD's 4th and 5th PVC contracts. There are two reasons for SD's position in this field. First, SD has extremely broad process design experience in the PVC field. Second, SD offers a complete service, assuming entire responsibility from the basic process design and detailed engineering, through construction and initial operation.

On this or any other organic chemical plant design problem, SD's services are available to you on a confidential basis. In new plant construction or the revamping of existing facilities to increase production efficiencies, you will profit by utilizing SD's specialized experience in organic chemicals plant design.

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Jersey City, New Jersey